

# TEXTOLITE TIMING GEARS



## Public Acceptance

**T**HE public may not know the details of design or manufacture which make one type of car more satisfactory than another, but it knows what it wants—40,000 to 60,000 miles of dependable service and a good trade-in value.

Textolite timing gears preserve the original accurate timing of any car for 60,000, 70,000, often 100,000 miles, and the car manufacturer knows that seldom need the purchaser spend one cent for adjustment or replacement.

*Plastics Department*  
**GENERAL ELECTRIC COMPANY**  
West Lynn, Mass.



**GENERAL  ELECTRIC**

December 22, 1934

# AUTOMOTIVE INDUSTRIES

**AUTOMOBILE**

Reg. U. S. Pat. Off

Volume 71

Number 25

JULIAN CHASE, Directing Editor  
DON BLANCHARD, Editor  
P. M. HELDT, Engineering Editor  
JOSEPH GESCHELIN, Eng. Editor  
ATHEL F. DENHAM, Detroit Editor  
JEROME H. FARRIS, Ass't Editor  
T. LAWTON SLAUGH, News Editor  
GEOFFREY GRIER, Art Editor

## Contents

News of the Industry	749
Business in Brief	758
Calendar of Coming Events	759
The Horizons of Business	760
Volume—1935's Automotive Goal. By Norman G. Shidle	762
1935 Dodge Has Semi-Elliptic Front Springs	764
Eaton Has Two-Speed Axle	767
How the Hudson-Bendix Electro-Vacuum Shift Works	768
Skidding Tests Show Friction Coefficients Vary with Speed	770
Just Among Ourselves	771
Uncertainty Impedes Recovery. By George L. Brunner	774
Production Lines	775
New Developments	776
Chevrolet Brake Linkage Has Plated Parts for Protection	778
Advertisers' Index	40



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J. S. HILDRETH, Vice-Pres. and Director of Sales  
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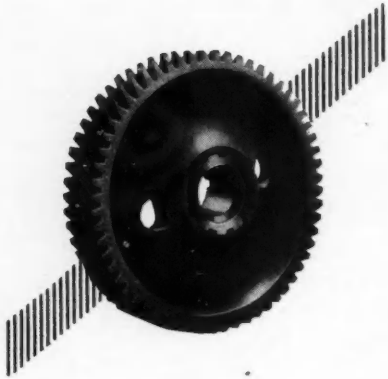
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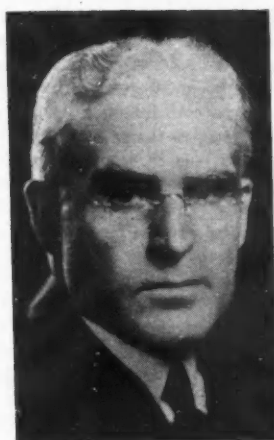
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*Automotive Industries*

## Cadillac Men Name Coughlin



Wm. J. McAneeny  
New Hupp president  
and general manager

(See page 756)

### December Low Point Of Retail Deliveries

Domestic retail deliveries of new cars and trucks at mid-month had reached their lowest point since last February, but held to higher levels than for the corresponding period of last year. Totals for the month for the industry, of course, will depend largely on how quickly important manufacturers can get new models into the field for delivery purposes.

Unless production can be stepped up rapidly from this point on sales will continue to decline, inasmuch as cleanups on the most important lines are virtually completed in many sections of the country.

During the early days of December sales held up fairly well due to satisfactory stocks of 1934 cars in dealers hands. For that period sales were running at a rate which would have produced a total of roughly 100,000 to 110,000 for the month including trucks as compared with retail deliveries for November of approximately 145,000 units.

Truck and commercial car deliveries have been dropping somewhat faster of late than passenger cars, following the

(Turn to page 756, please)

## Priest May Be Bargaining Representative; AFL Votes

by Athel F. Denham

Detroit Editor, Automotive Industries

The nomination of the Rev. Father Charles E. Coughlin of Detroit as a candidate for election as a collective bargaining representative of Cadillac workers at the Automobile Labor Board sponsored primary election Wednesday indicated that individuals, rather than associations, are the employees' principal concern. Of the 1593 votes cast in the primary, out of an eligible total of 2330, only 274 ballots carried any designation of "union" affiliation preference. Upon this basis, if the board finally chosen is to be composed of 16 members, 13 of them will have no designated union affiliation.

Despite the fact that the American Federation of Labor had previously ordered its membership to refrain from voting the ballots included about 94 indicating preference for A. F. of L. representation as compared with 152 for the Cadillac Employees Association, 20 for the M.E.S.A. and one for the Communist Auto Workers Union. On this basis, if it requires 5 per cent of the total vote to achieve representation for any union

organization neither the American Federation nor M.E.S.A. would be entitled to a representative, while the works council group would be entitled to one member of the bargaining agency.

However, the final set-up may differ materially, since, prior to the final make-up of the board a final election must be held with the nominees named at

(Turn to page 757, please)

## Detroit Sees 1935 Chryslers, DeSotos and Plymouths in First Public Showing

DETROIT.—Public showings are being held here of 1935 models of the Chrysler, DeSoto and Plymouth lines in the show room at the factory administration building. Included in the cars on exhibit are models of the Chrysler Air Flow and Imperial Air Flow, the DeSoto Air Flow, "Airstream" sixes in both the DeSoto and Chrysler lines and an "Airstream" eight for the Chrysler dealer organization.

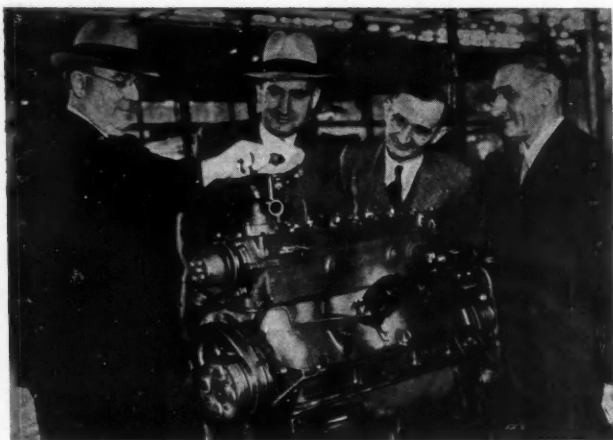
Notable on the Air Flows are changes in the front end through the provision of Vee-shaped and sloping rather than rounded radiator grilles. The Airstream cars are more conventional in design but have the engine well ahead over the axle similar in

general to Air Flow products. Of these cars the DeSoto Airstream Six, which apparently seems to be similar to the Chrysler Airstream Six, is an addition to the DeSoto line while the Airstream Eight represents an addition to the Chrysler line. The Airstream models are available with concealed rear tire mounting, sedan bodies having sloping rear panels.

Literature available on the new Plymouth models in the show room indicates that among the features of the new Plymouth in addition to those already published, there are such items as sloping rear panels with concealed tire mounting on some trunk models, headlamps mounted on streamlined brackets, concealed rear curtains in sedans,

(Turn to page 753, please)





P. H. MacGregor (left), general plant manager of Pontiac Motor Co. puts the final twist on the No. 1 six-cylinder Pontiac engine for 1935, as it comes off the motor assembly line. Left to right, his interested audience is made up of B. H. Anibal, vice-president in charge of engineering; Carl Heymann, superintendent of the motor plant and Frank W. Mowbray, general plant superintendent.

## Worker-Witnesses Picture Depression Consequences at NRA Employment Probe

by Don Blanchard  
Editor, Automotive Industries

Primarily testimony presented at the hearing on automotive employment conditions held in Detroit last Saturday and Sunday by Leon Henderson of NRA and Isidor Lubin of the Bureau of Labor Statistics, pictured the tragic consequences for factory workers of the low level to which the industry's volume has sunk since 1929. What the workers who testified want—as do most of the rest of us—is economic security. This appeared to be the main issue despite the fact that the bulk of the testimony consisted of charges of injustice and even law violation on the part of management.

Aside from the elimination of these alleged injustices and violations, the only remedy proposed was the 30-hr. week with compensating increases in wages. Some witnesses proposed, in addition, guaranteed annual incomes in amounts ranging from \$1500 to \$2500. Although testimony on the operations of Section 7a was ruled irrelevant at the outset, many of the witnesses succeeded indirectly in getting across the contention that if their rights were not abridged by employers' collective bargaining would provide the answers to many of the grievances they recited. This emphasis on the possibilities of collective bargaining occasioned no surprise, however, since most of the witnesses were either labor leaders or workers put on under union sponsorship.

The worker witnesses were a clean-cut, intelligent looking lot. For the most part they testified dispassionately and with apparent sincerity. So did F. J. Dillon, Detroit organizer and other A. F. of L. witnesses. Not so much can be said for Matthew Smith and Maurice Sugar of the MESA who seemed to be more interested in putting on a good show

than in being helpful. If such was their objective, they both were eminently successful as the audience seemed to enjoy their act immensely. Whether their attitudes and actions contributed anything to the cause of the workers, may be questioned.

The MESA urged minimum annual incomes of \$2,000 for production workers and of \$2,500 for toolmakers. Spokesmen for this organization also made it quite clear that they held industry responsible for continuity of income even though it could not give continuity of employment. They also declared that adequate income for the workers had priority over dividends and salaries. Richard F. Byrd, labor member of the Automobile Labor Board, also urged the annual wage which he said should be related to the cost of living to give a real wage.

The most detailed proposal was made by Mr. Dillon for the A. F. of L. unions. He urged a 30-hr. week and the 6-hr. day for the entire year and for all employees, with the exception of ten weeks during peak production when 36 hrs. weekly and 7 hrs. daily would be permitted. Time-and-a-half would be paid for overtime and double time for Sundays and holidays. When production slackens, the Federation recommended spreading available work by shortening hours until all employees are down to 24 hrs. before there is any lay-off. Seniority in lay-off and rehiring would be established by collective bargaining. Minimum wages of 60 cents hourly for common labor and of 70 cents for production workers were suggested, with adjustments above the minimum by agreement with the unions. No worker should receive less for 36 hrs. than he previously received for 45 hrs. For the same work, women should receive the same pay as men. A system of unemployment insurance should be instituted, the cost to be carried by the industry, but the operation of the plan to be managed jointly by employers and employees. Complicated wage systems should be replaced by simpler ones to be developed by collective bargaining, and all time studies should be instituted by joint agreement.

A number of witnesses testified as to their annual earnings and in some cases the figure given for some recent years was under \$500. Two witnesses gave their annual earnings over a period of years. The figures given by one of these were as follows: 1930, \$1,783; 1931, \$1,560; 1932, \$752; 1933, \$687, and 1934, 9½ months, \$1,018. These figures obviously correlate fairly closely with the industry's volume in those years.

The industry made no presentation at the hearing. Instead NRA representatives are contacting executives directly. The National Automobile Dealers Association filed a brief emphasizing the disturbing effects spreading new model introductions over the year would have on retail markets.

Malpractices of management alleged at the hearing for the most part covered familiar ground. It was charged that production had been speeded up to the point that the health of the workers was threatened and their life expectancy reduced. To accelerate output, foremen were said to make a practice of reminding the men that there was an army of unemployed waiting for their jobs if they couldn't keep up.

Espionage systems were declared to exist throughout the industry, and it was charged that these systems interfered not only with the ordinary liberties of employees, but also frustrated their efforts at self-organization.

Aside from charges of discrimination in violation of Section 7a a number of witnesses testified that maximum hour limits were being violated by subterfuge. Much criticism also was directed at the exceptions allowed certain classes of workers by the code, and particularly at the fact that toolmakers in the automotive plants were not subject to the same rules as those employed in contract shops. It was also asserted that the industry had not spread work but, on the contrary, had laid off men while others were working 48 hrs. weekly.

Instances were cited of unhealthful working conditions, especially in connection with fumes and dust. One witness said that at some plants applicants for work were forced to stand in line all day in the cold outside of the employment offices. Lay-offs were ordered, it was charged, without any notice, and workers were required to report daily

## Ford Truck Prices

Prices announced by the Ford Motor Co. on its 1935 line of V-8 trucks show increases ranging from \$10 to \$25 over 1934 prices.

	1935	1934	Inc.
131½-in. chassis .....	\$500	\$485	\$15
131½-in. chassis with closed cab .....	595	570	25
131½-in. platform .....	650	630	20
131½-in. stake .....	675	650	25
131½-in. dump chassis .....	530	515	15
131½-in. dump chassis with closed cab .....	625	600	25
131½-in. dump truck .....	800	780	20
157-in. chassis .....	525	510	15
157-in. chassis with closed cab .....	620	595	25
157-in. platform .....	690	670	20
157-in. stake .....	735	715	20
112-in. commercial car (closed cab chassis) .....	455	435	20
112-in. commercial car (pick-up) .....	480	450	30



even if there was no work. It was stated that wages were reduced by reclassifying employees without any change in the work done and that the current tendency to substitute day rates for incentive payment plans was being used to cut pay. Discrimination against older men was alleged and, in this connection, it was charged that the speed-up burned the workers out prematurely with the result that they were discharged. The group bonus was scored repeatedly on the ground that the worker couldn't check the contents of his pay envelope because of the complicated basis of the bonus.

Group insurance was the subject of particularly severe criticism. It was stated that the men had no voice in the selection of the company, the premiums had the first claim on the pay envelope, and that the insurance had no cash surrender value when the workers' connection with the company terminated. Physical examinations of applicants for work was the subject of blistering criticism and one witness inferred that group insurance was to blame for them. Considerable emphasis was also placed on the contention that work quotas are set by the management without consulting the men.

Not much was said regarding the consequences of higher labor costs at this time on the industry's financial structure, and the possible effects on volume of higher prices to pay the higher costs was totally ignored. The general viewpoint apparently was well stated by Charlton Ogburn, A. F. of L. counsel, when he said: "There is always a subsistence level which must be paid regardless of the position of the employer's finances." Few will disagree with this viewpoint in principle but its application in individual cases obviously involves complication, especially where pressure to spread work is exerted at the same time.

In his statement, Mr. Dillon of the Federation pointed to the financial strength and earnings of Ford, General Motors and Chrysler, and to the fact that these companies have obtained nine out of every ten sales made this year. Because of the predominance of these companies, he apparently felt that the wage question could be settled on the basis of the ability of these companies to pay, and without consideration of the effects any action based on this premise might have on the independent vehicle and parts manufacturers.

## Flint Chevrolet Workers Vote Return to A. F. of L.

Workers of the Chevrolet Motor Co. in Flint who sometime ago broke away from the A. F. of L. and joined the Associated Automobile Workers of America, have once more disbanded their local affiliated with the latter organization and have voted to return to the United Automobile Workers of America, the A. F. of L. affiliate.

## Commercial Body Code Hearing Is Postponed

The NIRB has announced that the hearing on the proposed amendment to the code for the commercial vehicle body industry, scheduled for Dec. 27, has been postponed until Jan. 11. It will be conducted at the Willard hotel by Deputy Administrator Jo G. Roberts.

## Canadian Studebaker Production Underway

The Canadian plant of the Studebaker Corp. at Walkerville, Ont., was expected to get into production on 1935 models during this week. In order to have completed models for display purposes at meetings of the trade and press, four models were imported from the United States factory. Full duty was paid on these cars, which will be used through the Dominion for show purposes.

## Boosters Party Jan. 8

The annual "Automobile Show Week" party of the Automotive Boosters Club, No. 13, will be held at the Hotel Victoria, New York City, Wednesday, Jan. 8.

# Revised Price Fixing, Control Policy Seen in NIRB Plan for Open Hearings

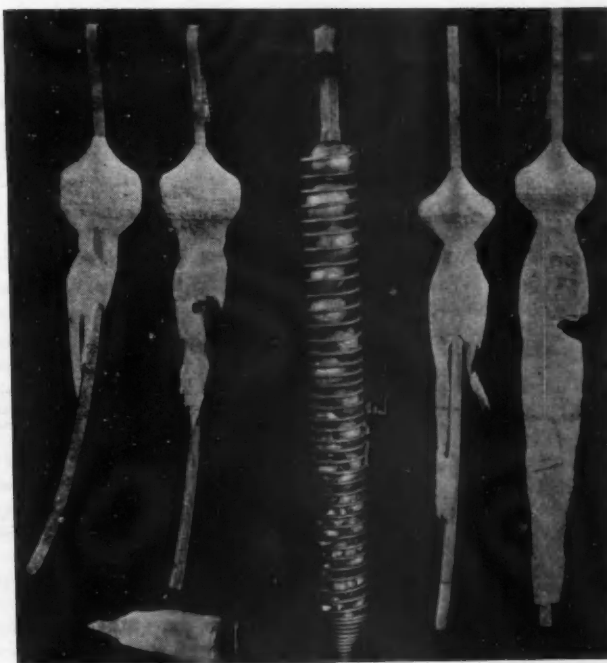
Revision of the National Industrial Relation Board's present policy regarding price control and price fixing in the codes is indicated by an announcement from S. Clay Williams, chairman, that the NIRB is to establish an entirely new procedure in conducting a series of open hearings on the operations of major code provisions and the advisability of amendment or continuation of these provisions. The hearing on the price control and price fixing provisions is to be the first of the series and is set for January 9.

In his statement Mr. Williams said his board had received an accumulation of evidence and opinion on the subject of price control which indicates that code provisions for mandatory costing systems designed to set minimum prices and permanent schedules of prices have not operated in the best interests of the industrial structure. Much of the information now before the board, he said, tends to show that such provisions have not accomplished the desired purpose and have proved neither workable nor enforceable.

An analysis of code provisions relating to minimum prices and cost methods made by the NRA Division of Research and Planning, shows that of 677 codes, 51 contain a "general statement" prohibiting destructive price cutting. The statement accompanying the analysis points out that it is important to emphasize that as between the five general classifications of minimum price and costing provisions a certain amount of duplication exists in the sense that a

single code may contain a prohibition against "destructive price cutting" and a "prohibition against selling below cost." Moreover, a single code may prohibit the sale below "individual" cost and below "reasonable" cost, or a code may both provide for the determination of cost accounting methods by the Code Authority and set forth specific methods for computing certain costs. It is these duplications which the NIRB hopes to eliminate.

U. S. Patent Re-issue 19328 covering ball anodes for electroplating and containers for same has recently been granted by the United States Patent Office. Through this new patent, The Udylite Company, Detroit, Michigan, now has exclusive rights to manufacture, sell and use ball and spheroidal anodes for electroplating. The Udylite Company first introduced ball anodes to the plating industry as part of the Udylite Process of cadmium plating several years ago.





F. J. Dillon (left), Detroit A. F. of L. organizer testifies at automotive employment inquiry before Leon Henderson (center) director of the NRA Division of Research and Planning, and his assistant Richard Lansburgh (right)

## NADA May Ask Larger Dealer Gross Profit

Convention to Consider Contract Model Guide Book Formula, Clean-Up

Plans to bring about aggressive action on factory-dealer relationships at the forthcoming convention of the National Automobile Dealers Association in Detroit, are being formulated by various dealer groups.

Among the subjects under consideration for action at the convention are additional gross profits for dealers, the handling of clean-up models, the formula for arriving at used car prices in the Guide Book, and a suggested model dealer contract.

On the subject of gross profits, it is more than probable that a resolution will be presented favoring the adoption of a policy which will permit marking up all charges made by the factory, except taxes, by the amount of the car discount. Unloading and make-ready charges would also be subject to a similar mark-up. An attempt to mark up such charges more than by the amount of the car discount, would be cause for cancellation. The possibility of an amendment to the core to permit a mark-up on freight also is under consideration.

Another resolution that is likely to be presented would protect dealers against changes in discounts or prices, and in addition would extend this protection to cover price or discount changes made with the approval of the manufacturer.

So far as the guide book is concerned, desirable changes in the method of computing prices are under consideration and the requirement that the low 20 per cent of reported prices be eliminated before striking averages is under attack.

It is understood also that F. W. A.

Vesper, NADA president, has appointed C. G. McKimmie chairman of a special committee to draw up a proposed model contract.

## Houde Worker Would Be Defendant In Suit to Protect Individual Rights

The Houde case took a new turn on Monday of this week when Joseph W. Dambach, president of the Houde Welfare and Athletic Association, petitioned the Federal District Court in Buffalo to make him a defendant in the action brought by the government.

This request is made on the grounds that default of Houde to appear in this action would enable the complainant to obtain the decree sought and compliance with such decree would deprive Mr. Dambach of his rights without giving him an opportunity to be heard, while failure of Houde to defend the action in good faith and adequately on trial of it would have like effect.

Attorney for Mr. Dambach is Edward W. Hamilton who, we are informed, is the author of the so-called Hamilton plan for men and management relationships which is said to be operating successfully in the Buffalo plant of the Curtiss Aeroplane & Motor Co.

The petition states that Mr. Dambach did not participate or vote in the election held March 21, 1934, and alleges that there were about 400 other employees who did not take part in the balloting. It is asserted that these employees received no notice of the government's contention that the representatives receiving the majority of votes would have exclusive bargaining rights for all Houde factory employees. In this connection, it is interesting to note that Donald Richberg has indicated that he believes the representatives selected by the

## Reo Adds Lighter, Lower Priced Flying Cloud

Reo is adding an entirely lighter and lower-priced Flying Cloud model which will be introduced at the New York Show, according to Don E. Bates, president of the company.

"The new car," Mr. Bates says, "presents further development of Reo aerodynamic fender and body and fender design." A new self-shifter transmission will be made available. Other features include seven-bearing Reo engine with chrome nickel alloy cylinder block and Lo-Ex alloy, cam ground pistons, new rigidly K-braced frame, new front and rear axles, hydraulic brakes, and cam and lever steering.

Prices are to be lower than on any previous Reo six-cylinder sedan. For the present, body types will include four-door and two-door sedans.

The Reo Royale for 1935 will be offered either with Reo's self-shifter or with a synchronized, quiet second transmission.

majority in an election have exclusive bargaining rights only for those who vote; those who do not vote retaining the right to select any they choose or to bargain individually.

The petition asserts that the controversy is not between Houde and its employees as the complaint states, but between Houde and the American Federation of Labor. In this controversy, the Federation is said to be supported by United Automobile Workers Federal Labor Union No. 18,839, while Houde is supported by all employees who do not belong to this Union. It is alleged that the Federation started the controversy over a year ago and has kept it going since with the cooperation of the Buffalo Regional Labor Board, the National Labor Board, the National Labor Relations Board and the Department of Justice.

After discussing the financial, numerical and political strength of the Federation, the petition alleges that it procured the appointment of its representatives as employee members of the Buffalo Board, and that it has caused the Board to interfere with the rights of the petitioner and other similarly situated employees. It also charges that the Federation's representative, who was a member of the Board, appeared at hearings and assisted the Union in prosecuting the case against Houde.

The petitioner states that he is not and never has been a member of the Federal Union. However, with hundreds of others he asserts that he signed a membership application because of pressure, threats and coercion during the Union's membership drive. He continues that he has never paid either initiation fee or dues, and that he



does not choose the Union and is unwilling to have it represent him.

The election held last March is declared to be null and void on the grounds that the Buffalo Regional Board was not legally constituted, and that the Board did not conduct the election lawfully, but unfairly in favor of the Union.

Charging that in the campaign for members, the Federation, or its agents, interfered with and restrained employees, and sought to alienate them from the company and the Welfare association by circulating statements such as "the American Federation was the only friend and protector of the working man; that said defendant corporation was the enemy of its employees, seeking to enslave them; that said Association was a 'company union,' organized, financed, and controlled by the defendant." It is alleged that hundreds of employees were deceived by such statements and were influenced by them and by interference, restraint and coercion, with the result that they voted for the Union, where otherwise they would have voted for the Welfare association.

It also is alleged that the Board held hearings on complaints occasioned by Houde's willingness to deal with individuals or with representatives of any group, without notifying the petitioner and other similarly situated employees whose rights were involved.

Section 7a is attacked on constitutional grounds because it protects the employee from coercion or interference on the part of the employer, but that it does not similarly protect the employee from coercion and interference on the part of labor organization. It is asserted that this constitutes discrimination against employees who chose to bargain individually, or through representatives of their own choosing which are not Federation affiliates or other outside organizations.

**BUFFALO, Dec. 20**—The Federal District Court at Buffalo has set Dec. 24 for the hearing on the Houde Engineering Corporation motion for an amended bill of complaint and the Federal government has granted the Buffalo company an extension of ten days beyond the date when the motion is scheduled to be heard in court.

### Nov. Production 78,415; Above Original Estimate

November production of motor vehicles in the United States totaled 78,415 units, according to the U. S. Bureau of Census. Included in this total are 45,489 passenger cars, 32,920 trucks and six taxicabs. Canadian output amounted to 1697 units, of which 1052 were passenger cars and the remainder trucks.

### Detroit Sees 1935 Chrysler Lines

(Continued from page 749)

windshields opened by a crank in the lower windshield header, 3 in. longer and 3 in. wider bodies, ash tray in the instrument panel, forced draft generator, vacuum control for the distributor advance, foot operated starter switch, water distributor in the cylinder block for better cooling of exhaust valve seats, full length jacketing of cylinder bores, increased horsepower with a compression ratio of 6.7 to one, synchronizers in the all helical gear three speed transmission, 30 per cent lighter clutch pedal pressure, ventilated clutch housings, etc. Cylinders for the rear shoe of each brake are larger than those for the front shoe to compensate for the self energizing action of the front shoe. The literature states that oil temperatures at 80 mph. have been reduced from 267 deg. to 218 deg., as the result of more complete water jacketing.

General appearance of the Plymouth is somewhat similar to that of the new Dodge models announced this week (see page 764), although there are distinctive differences in hoods, fender treatment and radiator grilles.

### S.A.E. Dinner Jan. 7

D. G. Roos, S.A.E. president, will preside at the annual S.A.E. dinner, Jan. 7, at the Commodore Hotel, New York. The speakers will be W. B. Stout, nominated for the presidency for next year, and Col. Roscoe Turner, noted aviator.

## Vice Presidencies For Chrysler Men

**Frazer, Peed, Jacobson,  
Moock Promoted; Rumor  
Service Consolidation**

W. P. Chrysler, Chairman of the Board of Chrysler Corporation, has promoted to executive rank the four men who will head the newly coordinated field forces of Plymouth, DeSoto and Chrysler.

The new appointments are:

J. W. Frazer, formerly General Sales Manager of Chrysler Sales Corporation, now becomes Vice-President in charge of Plymouth, De Soto and Chrysler sales in the Eastern territory. Mr. Frazer becomes a Vice-President of each of these three companies.

L. G. Peed, formerly General Sales Manager of the De Soto Motor Corporation, becomes Vice-President in charge of Plymouth, De Soto and Chrysler sales in the Central territory. Mr. Peed becomes a Vice-President of each of these three companies.

C. L. Jacobson, formerly Director of Branches, becomes Vice-President in charge of Plymouth, De Soto and Chrysler sales in the Western territory. Mr. Jacobson also becomes Vice-President of each of these three companies.

H. J. Moock, formerly General Sales Manager of Plymouth Motor Corporation, becomes Vice-President of Plymouth and will continue to direct Plymouth sales nationally.

At the same time, Mr. Chrysler announced the election of D. S. Eddins, formerly Vice-President and General Manager of Plymouth Motor Corporation, to become President of that company, which office has been vacant for several years.

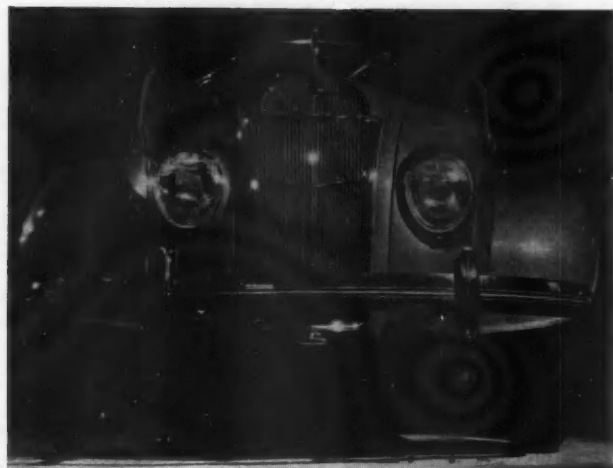
Although no official announcement has been made, it is rumored that a consolidation of service activities on all Chrysler lines is under way. Reports state that there are to be two departments, one under W. A. Hilman, former Chrysler service manager, who will have A. D. Dowd as his assistant, and the other headed by Russel Paige, former Dodge service manager, with Harry Heath as assistant. Mr. Hilman's department, it is said, will have charge of complaints, service bulletins, etc., while Mr. Paige's department will handle the consolidated field service organization, etc.

### Hupp Sales Meeting

District sales executives of the Hupp corporation from all parts of the country concluded a three-day sales conference at the factory last Monday. The meetings, which were presided over by Rufus S. Cole, executive vice-president and general manager, were principally devoted to a discussion of sales plan for the first half of the coming year. New Hupmobiles were demonstrated during the meetings.

### Gartley a Ford Dealer

P. C. Gartley, one time general sales manager of Willys-Overland and later Chicago distributor for that company, has opened a Ford dealership in Chicago, at 2000 S. Michigan Ave.



Front view of the 1935 DeSoto Air-flow. The basic lines are unchanged, the major change being in the radiator grille.



## Biddle Uncertain of Power Over ALB; Would Assume Jurisdiction in Crisis

What power the National Labor Relations Board may have over the Automobile Labor Board is uncertain, according to views expressed by Francis Biddle, NLRB chairman, at a recent press conference. Mr. Biddle, while doubtful whether an appeal could be taken to his agency from an ALB decision, has stated that should the ALB break down the NLRB would seriously consider assuming jurisdiction in a dispute, and in the event of a strike or other labor crisis would not hesitate to take jurisdiction where such action would be considered "wise and just".

Considerable importance has been attached to Mr. Biddle's remarks in view of the Automotive Workers' Council move to have William Green, A. F. of L. president, repudiate the President's automobile settlement of last spring and ask the establishment of a new board to replace the Wolman-Kelly-Byrd group. Additional significance is felt to attach itself to Mr. Biddle's statement inasmuch as he and Secretary of Labor Perkins had conferred with Mr. Roosevelt on the general labor situation, prior to the press conference, and it is assumed the automotive question was among those discussed at the meeting.

For some time it has been known that the American Federation wing of organized labor has sought to break down the ALB and its plan of "proportional" representation for collective bargaining. This effort was strengthened last week when three A. F. of L. affiliates refused to participate in the Cadillac election ordered by the Wolman board.

In his press conference Mr. Biddle made it clear that the NLRB has not yet determined what jurisdiction it has over ALB. It was pointed out that the automotive board's status differs somewhat from that of other labor boards. It was set up under

a separate agreement between industry and labor. The NLRB and the National Steel Labor Relations Board were established by the so-called "Joint Resolution", the compromise measure passed by the last Congress in place of the Wagner "Labor Disputes Bill".

However, NLRB definitely holds to the theory that it alone has the authority to interpret Section 7-a of the Recovery Act. But whether its majority ruling is good law is debatable and it is becoming increasingly evident that only a court decision, the Supreme Court in all likelihood, will definitely settle the problem.

There is, however, a sharp difference of opinion among the administration "high-ups" over the power of the NLRB, as demonstrated by the sharp tilt between Donald R. Richberg, director of the National Emergency Council, and the NLRB over a ruling by the latter in the San Francisco Call-Bulletin case ordering the reinstatement of a reporter dismissed allegedly for Newspaper Guild activity. Mr. Richberg was joined in his opposition by Blackwell Smith, acting general counsel for NRA. These two men attacked the assumption of jurisdiction of NLRB over board set up by the newspaper code.

Should the NLRB assume jurisdiction in the automotive industry, and such a move is unlikely unless one of the parties to the automotive settlement should repudiate the instrument, it will probably mean the setting aside of the proportional representation rule established by the ALB. Observers, while admitting such a possibility, discount the probability, pointing out that since the administration created the ALB it will hardly abandon it even if organized labor does direct a concentrated drive for such a shift.

During his press conference Mr. Biddle made it clear that in order to carry out the industrial truce requested by President Roosevelt a short time ago every one must observe the collective bargaining provisions of the Recovery Act. He stated that where groups are honestly elected under the supervision of NLRB such groups would be rec-

ognized by his board regardless of their affiliations. From this statement, it became clear that where company union representatives were elected under NLRB supervision they would be recognized as fully as any other organized group. The NLRB chairman said his board would not accept the suggestions of some employers that the board take no action in settling pending labor disputes until the Houde, Weirton Steel, and other cases now before the courts are decided. Rather, Mr. Biddle insisted that Congress should act to protect labor in its right to bargain collectively during the prolonged period between the hearing of these cases and the issuance of the court's decision. He held no hope that a test case under Section 7-a will reach the Supreme Court before next June, when NIRA expires.

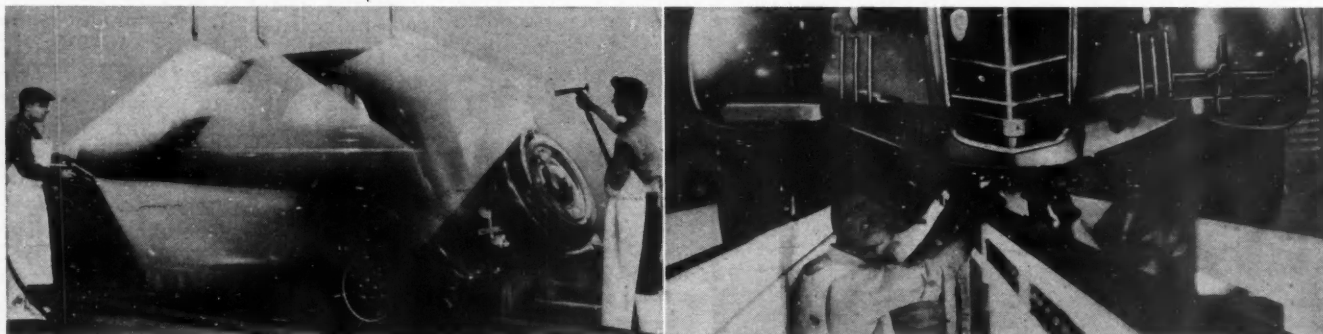
## Coonley, Moskovics Head Standards Assoc. for '35

Howard Coonley, president of the Walworth Company, was re-elected president of the American Standards Association for 1935. Frederick E. Moskovics, representing the Society of Automotive Engineers, was re-elected vice-president. Mr. Coonley, who represents the American Society of Mechanical Engineers, has served two terms as president.

J. C. Irwin, Boston and Albany Railroad, and F. M. Farmer, Electrical Testing Laboratories, were re-elected chairman and vice-chairman, respectively, of Standards Council.

## Binks Manufacturing Co. Forms Canadian Subsidiary

Neil C. Hurley, president, and J. F. Roche, vice-president and operating head of the Binks Manufacturing Company, Chicago, announce the formation of a new Canadian company to be known as the Binks Manufacturing Company of Canada, Limited. The new Binks of Canada will be located at Windsor, Ontario. Mr. Hurley and Mr. Roche are also the principal officers of the Canadian corporation.



A panorama of Chrysler-DeSoto new car service inaugurated to insure uniform inspection and conditioning of all cars before leaving the factory. On the left is the water test used to insure against leaks in roof, windows, windshield and doors. At the right a car is shown over the pit where trained factory inspectors carefully check each car before it is sent out to a dealer

## Car Makers' Orders Cheer Steel Group

**Expect New Year Demand to Warrant Stepping-Up Output to 35% Capacity**

Steel mill operations this week were more under the influence of the impending Christmas holiday than fresh market developments. Schedules in many plants were so arranged that operatives would have a relatively fat pay envelope for Christmas and as much leisure as possible to enjoy the holiday. Pressure for shipment of material urgently needed by motor car manufacturers and parts makers for immediate assembling serves to inject a cheering note into the situation, promising a further, step-by-step broadening of the demand during the first quarter of the new year.

When the steel industry gets into post-holiday stride in January, it is expected to have an order book that will justify at least a 35 per cent of ingot capacity rate of output. The rate at which semi-finished steel is being produced will have to be stepped up to keep more nearly pace with the broader demand for finished steel. Some of the finishing mills were employing more than half of their capacity this week. Rate of operations in the Pittsburgh district is backward, as compared with that in the Ohio, Chicago and Detroit districts.

One of the steel market's worries this week is a conference between National Recovery Administration officials and the Federal Trade Commission, scheduled for Dec. 21, at which the divergent views of these two bodies with reference to the Steel Code basing point system were to be clarified, with a view to their possible coordination. Whatever changes may be made in the code set-up of the steel industry and whether or not price regulation is generally slated for the discard, copper producers have been assured that they will continue to enjoy the benefit of price agreements, copper mines being looked upon as part of the country's natural resources and, therefore, entitled to the same protection as agriculture, etc.

**Pig Iron**—Demand in the middle west is more active. A Lake furnace is reported to have booked a 15,000-ton contract for first quarter shipment, 5,000 tons to be delivered in January. Several heretofore idle furnaces have gone into blast. The price situation is unchanged.

**Aluminum**—The trade is showing much interest in the wider use of aluminum in motor truck bodies for vehicles making deliveries in municipalities where load limits are rigid. Quotations have undergone no change.

**Copper**—Slightly better consuming as well as foreign demand has put the market in so optimistic a frame of mind that, although there is still a spread of 13 cents a pound between the "Blue Eagle" price and the outside market, one hears now predictions of price advances in February.

**Tin**—The Straits market continues steady with spot metal quoted at around 51 cents and fractional, from-day-to-day changes largely brought about by the minor fluctuations in Sterling exchange.

**Erecting the new 400-ton Hamilton press at the Pontiac plant. It stands 20 feet above the floor and extends 25 feet into its massive foundation**



**Lead**—The lead market moved into higher ground late last week, when the leading interest's contract price was advanced \$2. Further advances were believed to overhang the market.

**Zinc**—Quiet and steady.

## Ford Must Recognize Mine Union, RLB Rules

Henry Ford's Kentucky Coal Mining Company has been ordered by the Bituminous Coal Regional Labor Board to recognize the United Mine Workers of America, or any other group that may be chosen, as representing the coal company's employees in collective bargaining.

The decision of the board, announced December 13 by Chairman Charles B. Barnes, ordered the Fordson Coal Company, Ford subsidiary operating mines at Hardy, Stone and McVeigh, Ky., to meet officials of the United Mine Workers "or any other representatives the workers may select," and negotiate a collective bargaining agreement "in good faith." This action must be taken by January 1, the board ruled.

Recognition of representatives and negotiation of an agreement for collective bargaining was the only issue, the board set forth in its review. Letters from M. L. Skeen, manager of the company, and B. J. Craig, its secretary, the paper said, had agreed that a "substantial majority" of the workers are members of the United Mine Workers, but added the company did not wish to sign the Williamson District agreement of the union because of the union's lower pay scale, and because it did not wish to be

a "collection agency" for union dues.

Petitions signed by "practically all" the coal company's employees, the board said, expressed choice of United Mine Workers officials as representatives in collective bargaining, but contended "nothing was being done by the company to grant the workers their full rights under the National Industrial Recovery Act and the code of fair competition for the bituminous coal industry."

## Budd to Issue Stock; A. M. Andrews Resigns

The directors of the Edward G. Budd Manufacturing Company have authorized the officers of the company to request the approval of the stockholders to the issuance of 500,000 additional shares of common stock, increasing the authorized common stock to 1,600,000 shares.

Georges F. Doriot, of Boston, was elected to membership on the board to fill a vacancy. It was announced that the resignation from the board of Archie M. Andrews had been accepted.

## Pierce-Arrow in Production

New 1935 Pierce-Arrow twelves and eights for introduction at the New York and other automobile shows are in production at the company's factory in Buffalo, Arthur J. Chanter, president of the company, has announced. Actual shipments for exhibition and for distributors' stocks will begin during next week, Mr. Chanter said.



## New Ford Passenger Car Announcement Due Dec. 29

The new Ford passenger cars will be announced Dec. 29. New features include copper lead rod bearings, crankcase ventilation, more flexible front seat, a better ride, back seat forward of the rear axle and new body styles.

Elsewhere in this issue are shown detail views of the new Ford trucks announced last week. The trade assumes that the new front spring mounting and the crankcase ventilating system adopted on the truck, will also be used on the passenger cars. The softer front springs and the announced body improvements point apparently to some redistribution of weight with more load on the front springs.

## New Chevrolet Service Set-Up Is Detailed

Further details as to the operation of the Chevrolet Service Department under C. W. Wood were made available by the factory this week. In the central office the organization is headed by the following men under Mr. Wood:

H. H. Hicks, Service Product Engineer; A. A. Good, Chief Service Instructor; Howard Hughes, Service Publications; R. V. Molby, Dealer Buildings; D. L. James, Service Development, and R. C. Clark, Mechanical Instructor.

There will be nine regional service and mechanical managers under the plan. These men will contact directly with the production and engineering departments through the Central Office and at the plants, rather than with the Sales Division, the objective of this arrangement being to facilitate the handling of any and all complaints relayed to Production and Engineering. Selection of these men has largely been under the supervision of C. E. Wetherald, Chevrolet General Manufacturing Manager, and J. M. Crawford, Chief Engineer. They are:

G. H. Dow, Flint; F. E. Nettleton, Atlantic Coast; A. H. Auld, New England; H. P. Senior, Mid-West; C. M. Davenport, Eastern; W. P. Wagner, Great Lakes; T. E. Talbot, Southwest; E. C. Butler, Pacific Coast; F. L. Magoon, Southeast.

In addition there will be one man heading up the activity in each zone. These new service men, according to C. W. Wood,

will work with dealers more closely than ever before, ironing out any mechanical difficulties that might arise and do it more quickly than has been possible in the past.

In addition therefore, to providing Chevrolet dealers with more readily available factory help on mechanical service problems, it will provide Chevrolet design and production with a closer contact with troubles as they arise on cars in service, thereby serving as indicators of needed changes in product.

The Central Office organization in charge of Parts and Accessories Sales, under M. D. Douglas, former Chevrolet Service Manager, consists of I. W. Thompson as Assistant Manager; A. B. Piper, Office Manager; C. F. Maguigan, Manager of Warehouse Operations; P. A. McKay, Accessory Research; J. W. Auther, Parts Research, and J. R. Harrison, Wholesale Parts Development. It is assumed that this organization will form the nucleus of the General Motors Parts Corp. now being brought into active existence. Following are names of the Regional Parts and Accessory Managers:

J. F. Daley, Flint; J. H. Meisch, New England; T. Eliason, Eastern; Leon Bard, Atlantic Coast; F. W. Wilkins, Southeast; G. A. Sprackling, Great Lakes; R. P. Bruner, Midwest; H. Wilson, Southwest; and J. Val Strough, Pacific Coast.

As pointed out previously, this organization will not be concerned in any way with service or mechanical matters, concentrating on parts and accessories merchandising only.

This statement does not reveal directly which organization is to be in charge of service promotion but it is believed that this function will come under the Chevrolet Regional and Zone sales managers and their assistants rather than under the Service Division, cooperating however, with the service and mechanical section.

## Dodge 1935 Prices

Prices on the 1935 Dodge line follow:

Model	Price Change
Coupe	\$645 None
Coupe with rumble	710 +\$20
Four-door sedan	735 -10
Two-door sedan	690 -5
Four-door touring sedan*	760 New
Two-door touring sedan*	715 New

\*With built-in trunk.

## Hupp Board Elects McAneeny President

Report Says Cole Will Be Vice-Pres. in Charge of Sales in New Set-Up

William J. McAneeny was elected president and general manager of the Hupp Motor Car Corp. at a meeting of the board of directors in New York Wednesday. Mr. McAneeny fills the office vacated by the retirement of C. D. Hastings.

The announcement of Mr. McAneeny's election was made by Archie M. Andrews, chairman of the board. Briefly Mr. Andrews' statement said that the new Hupp president is one of the few men in this industry who has been president of two major automobile companies. He joined the Hudson Motor Car Co. in 1909 as purchasing agent, working his way up through the organization until in 1929 he was elected president of that company. Mr. McAneeny enters upon his new duties at once.

Mr. Andrews' statement adds that the Hupp factory has been extensively revamped for more efficient manufacturing and that the enthusiasm of the distributing organization for the new models has resulted in a substantial bank of orders.

It is understood that Rufus S. Cole, who has been executive vice-president of the Hupp organization remains as vice-president in charge of sales, with Arthur Brandt in charge of production, engineering and purchasing.

## December Low Point of Retail Deliveries

(Continued from page 749)

usual seasonal trends. For the last quarter year, however, truck sales will show a much greater percentage of gain than the passenger cars due to higher totals for October and November. In this respect the truck and commercial units are continuing the general experience of the year.

## 10 Mos. Wholesale Financing Exceeds Retail by \$69,600,000

(282 Identical Companies)

Year and Month	Wholesale Financing Volume in Dollars	RETAIL FINANCING											
		Volume and Average				NEW CARS				USED CARS			
		Number of cars	Amount	Per car	Number of cars	Amount	Per car	Number of cars	Amount	Per car	Number of cars	Amount	Per car
Sept., 1934	\$55,586,456	179,886	\$67,209,428	\$374	78,179	\$43,249,804	\$553	98,181	\$22,707,602	\$231	3,526	\$1,252,022	\$355
Oct., 1934	45,363,396	185,414	68,224,126	368	77,502	42,737,846	551	103,900	24,126,748	232	4,012	1,359,532	339
10 Mos., 1934	823,978,306	2,006,142	754,338,829	376	908,390	500,621,961	551	1,057,212	239,308,158	226	40,540	14,408,710	355
Oct., 1933	38,962,531	162,140	57,502,969	355	70,669	36,790,012	521	87,998	19,665,186	223	3,473	1,047,771	302
10 Mos., 1933	445,708,152	1,483,818	519,440,634	350	646,385	331,640,489	513	803,623	177,086,243	220	33,810	10,713,902	317

December 22, 1934

Automotive Industries



## New DeSoto Prices

With the introduction of the 116-in. wheelbase Airstream Six, priced at from \$695 to \$825, DeSoto reverts to its original price class. The Airflow model is continued in four-door sedan, coupe and two-door sedan body types, all priced at \$1,195 as compared with the 1934 price of \$995.

Prices on the new Airstream Six models, as announced this week by President Byron Foy, follow:

Business coupe .....	\$695
Rumble seat coupe .....	760
Two-door sedan .....	745
Four-door sedan .....	795
Two-door touring sedan .....	775
Four-door touring sedan .....	825

The new models have been in production since Dec. 1.

## Chrysler 1935 Prices

The Chrysler line for 1935 will include Airstream six and eight-cylinder models, as well as three eight-cylinder series with Airflow bodies.

Prices announced by J. E. Fields, president of Chrysler Sales Corp., follow:

	Airstream 1934 Six	Six
Business coupe .....	\$745	\$740
Rumble seat coupe .....	810	850
Four-door sedan .....	830	820
Four-door touring sedan .....	860	900
Two-door touring brougham .....	820	760

	Airstream Eight
Rumble coupe .....	\$935
Four-door sedan .....	975
Four-door touring sedan .....	995
Two-door touring brougham .....	960

Airflow body types include a six-passenger sedan and a coupe. On the eight-cylinder chassis, both list at \$1,395, while on the imperial eight chassis the common price is \$1,675. The respective prices in 1934 were \$1,345 and \$1,625. Prices on the custom imperial which will be furnished in two wheelbases, have not been announced.

## Canadian GE Elects McLaughlin Director

R. S. McLaughlin, president of General Motors of Canada, Ltd., Oshawa, Ont., has been elected a member of the board of directors of the Canadian General Electric Company, Ltd., Toronto, Ont.

## New Oldsmobile Shown

Adoption of all steel roofs and retention of hydraulic brakes and independent springing were revealed as high lights of the new Oldsmobile six and eight cylinder models shown Wednesday to residents of Lansing and visiting newspapermen. Other features included "V" windshields, rear luggage compart-

ment with concealed tire mounting, running boards separated from fenders, more sloping rear sedan panels with seats farther ahead and new sheet metal treatment throughout. On coupe models spare tires are carried inside the car back of the cross seat.

## Plymouth 1935 Price Range \$565 to \$685

Prices on 1935 Plymouth models range from \$565 to \$685 as compared with the 1934 range of \$485 to \$695. Direct comparison of the new models is impossible because of changes in model designations.

The new prices follow:

Business coupe .....	\$565
Two-door sedan .....	615
Deluxe Models .....	...
Rumble seat coupe .....	630
Four-door sedan .....	660
Four-door touring sedan* .....	685
Two-door touring sedan* .....	650

\*With built-in trunks.

## Advise Minimum Wage For Skilled Labor

The Labor Advisory Board of NRA has handed to S. Clay Williams, NRA chairman, a memorandum recommending the establishment of minimum wages for skilled and semi-skilled labor, imposition of codes on uncoded industries and equal labor representation upon all code authorities.

In its recommendation for a fixed minimum wage for skilled and semi-skilled labor the board states the unskilled and inexperienced workers form only a small part of the 40,000,000 American wage earners. Hence, the memorandum points out, the majority of the workers have been left "to the protection of some wishful thinking clause calling for an equitable adjustment of all those wages above the minimum." Only 47 codes, it is stated, provide for minimum scales of pay for skilled workers.

## Cadillac Men Name Coughlin

(Continued from page 749)

Wednesday's primary standing as the candidates. Included in the nominations from the various districts were at least two A. F. of L. men, J. E. Fogarty, nominated from the fender division, and Elmer E. Collins, president of an A. F. of L. local from another division.

Father Coughlin will be asked by the ALB whether he desires to serve on the committee before his name is permitted to be placed on the final ballot along with those of several other outsiders who were named. A strain of facetiousness crept into the voting when examination of ballots showed that such national figures as former President Herbert Hoover and Babe Ruth were the choice of some workers.

E. H. Gustavson, secretary of the Cadillac Employees Association, was nominated from his district.

At the final election, Dec. 28, the names of all nominees who desire to serve will be placed on the final ballot. Selection of members for the committee, under the rules laid down by the ALB, will be on the basis of total votes for each listed candidate. In the final balloting employees will not have an opportunity to designate organization desires for any particular association or union, and the board elected at the Dec. 28 voting will represent all the Cadillac workers irrespective of whether or not they voted in Wednesday's primary.

As far as Cadillac is concerned, the question of proportional versus majority representation is a dead issue as long as

President Roosevelt's automobile settlement of last spring stands. Consequently this means that the workers are to be represented by representatives of their own choosing, rather than by organization.



Rev. Charles E. Coughlin

## Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

The upward movement of general business gained momentum last week. Retail sales were stimulated by the colder weather and an active Christmas demand. Steel operations increased to the highest level since the end of last June.

### Car Loadings Increased

Railway freight loadings during the week ended December 8 totaled 551,011 cars, which marks an increase of 62,893 cars above those during the preceding week, an increase of 9,019 cars above those a year ago, and an increase of 30,404 cars above those two years ago.

### Food Prices Down

Retail food prices on November 20, according to the Bureau of Labor Statistics, continued the decline that began early in September. The current index stands at 114.9 based on the 1913 average as 100, as against 115.3 two weeks earlier and 106.8 a year ago.

### Store Sales Disappointing

According to the Federal Reserve Board, department store sales during November increased by less than the estimated seasonal amount. The preliminary adjusted index stood at 72, as against 74 for October and 76 for September. The volume of sales during November was 11 per cent above that in the corresponding period last year.

### Current Production Greater

Production of electricity by the electric light and power industry in the

United States during the week ended December 8 was 7.7 per cent above that in the corresponding period last year and 8.4 per cent above that during the preceding week.

### Building Dollar Volume Less

Construction contracts awarded during November, according to the F. W. Dodge Corporation, amounted to \$111,740,800, as compared with \$135,224,800 during the preceding month and \$162,340,600 during the corresponding period last year. There was a decline of more than \$6,000,000 in residential construction, as compared with that during the preceding month.

### Crude Output Drops

Average daily crude oil production for the week ended December 8 amounted to 2,386,850 barrels, as against 2,372,700 barrels for the preceding week and 2,317,750 barrels for a year ago.

### Fisher's Index

Professor Fisher's index of wholesale commodity prices for the week ended December 15 stood at 78.6, as against 78.7 the week before and 79.0 two weeks before.

### Federal Reserve Statement

The consolidated statement of the Federal Reserve banks for the week ended December 12 showed a decrease of \$1,000,000 in holdings of discounted bills. Holdings of bills bought in the open market and of government securities remained unchanged.

## Dealer Code Trade-in Provisions Liberalized

Amendments to the Motor Vehicle Retailing Code making provisions regarding time limits of used car trade-in allowances more flexible have been approved by the National Industrial Recovery Board. The code as formerly approved stated that the allowance on a used car, taken in trade as part payment on the purchase of another vehicle, should not be in excess of the maximum permissible allowance as determined by the used-car guide "current as of the date title and possession of the used car passes to the dealer."

The new amendment modifies this clause to provide for instances where a dealer is unable to make immediate delivery within about 30 days from receipt

of the order for the other car. In such case the dealer may give the trade-in allowance as of the time of delivery of the new car to the purchaser. All these transactions must be filed with the code's State Advisory Committees. The amendment also provides that the State Advisory Committee shall be the agencies to determine the acceptability of the credit rating of purchasers where no cash deposit is placed before purchase.

## New Machine Will Grind Irregular Cam Contours

Kearney & Trecker Corp., Milwaukee, manufacturers of milling machines and other machine tools, has perfected a grinding machine which makes possible grinding of irregular contours on cam-shaft cams. This is expected to be an

important contribution toward solving the problem of faster acceleration in automobile engines. Previously it had not been possible to grind irregular contours to a point approaching perfect smoothness.

The machine is a two-spindle grinder. It is controlled hydraulically and has a vertically reciprocating ram in the center. At the bottom of each stroke, the table on the top of the ram automatically makes a half circle. Four motors are used, two to operate the spindles, one for the hydraulic pump and the fourth for operating the coolant system. The unit is fully automatic.

## Gasoline 27c to 65c Per Gallon in Europe

Gasoline prices in the principal European countries range from twenty-seven cents per U. S. gallon in Denmark and Norway to sixty-five cents in Italy. A list of the prices in the principal countries of Europe, compiled by the Foreign Travel Division of the American Automobile Association from information just received through European automobile clubs, follows:

Country	Average price per U. S. gallon
Belgium	\$0.42
Czechoslovakia	.42
Denmark	.27
England	.38
France	.60
Germany (registered marks)	.30
Hungary	.57
Italy	.65
Lithuania	.30
Luxembourg	.38
Netherlands	.38
Norway	.27
Spain	.38
Switzerland	.40

These prices are calculated on present exchange rates, and include all taxes, import duties, etc. In a number of countries the blending of alcohol with the gasoline is compulsory. These include France, Czechoslovakia, Germany, Hungary and Italy. Alcohol blends are not available in Belgium, Lithuania and Spain. In the other countries there are no restrictions on the use or non-use of alcohol.

## Ampco Metal Gets Hayes Die Order

Ampco Metal, Inc., Milwaukee, has received from Hayes Body Corp. an order for a set of 18 dies, to be used, all on one machine, for flash-welding Hupmobile bodies. The dies are of a special aluminum-bronze alloy, of about 240 Brinnell hardness, and will contain about 3000 lbs. of metal. Ampco also has booked a substantial order for pickling equipment from a large automobile frame plant.



**Charles S. Lockwood**

83-year-old Hyatt Bearing Co. employee, who was guest of honor at a dinner given recently to celebrate 60 years of continuous service Mr. Lockwood has completed in the various enterprises of John Wesley Hyatt

## Special Works Council Bulletin Issued by NAM

The National Association of Manufacturers has released a bulletin on works council employee representation plans, the result of a study of labor relations by the Employment Relations Committee of the association of which C. S. Davis, Borg-Warner president; Merle C. Hale, director of industrial relations for General Motors, and D. H. Kelly, vice-president of Electric Auto-Lite, are members.

The bulletin discusses various types of works councils comparing them with the type of labor organizations represented by the American Federation affiliates and similar groups.

In the bulletin, divided into 21 sub-topics, collective bargaining is defined; works councils explained; the fact that the works council is not a panacea for all management-employee problems admitted, and the legal aspects of the problem presented. This latter section was prepared for the bulletin by the association's law department.

## Elect Russell Vice-Pres. Of S-O Development Co.

R. P. Russell has been elected vice-president of the Standard Oil Development Company, the laboratory and technical affiliate of the Standard Oil Company of New Jersey. G. M. Maverick has been transferred to New York but will continue to manage development and research activities at Bayway, N. J.

W. E. Currie, vice-president, has been named head of the legal and patents department, which have been consoli-

dated. W. R. Carlisle and W. V. Hanks have been transferred to posts in Europe and E. V. Murphree, formerly director of the development and research departments of the Standard Oil Company of Louisiana, has been transferred to the New York offices of the Standard Oil Development Company.

## Hoge Succeeds Mengel As Company President

William L. Hoge, president of the Mengel Body Co. and vice-president of Mengel Co., Louisville, Ky., has been elected president of the company by the directors to fill a vacancy caused by the death early this month of Col. C. C. Mengel, who had headed the company since 1877.

Mr. Hoge joined the Mengel Co. in 1917 and became president of its subsidiary, the Mengel Body Co., at its formation in 1922.

## Davies Succeeds Rice As ASME National Secretary

C. E. Davies, since 1931 executive secretary of the American Society of Mechanical Engineers, was appointed national secretary of the Society. He succeeds Dr. Calvin W. Rice, whose death in October of this year terminated twenty-seven years of active service as national secretary. Mr. Davies has been a member of the staff of the Society since 1920.

## GM Stockholders Increase 1640 Over Third Quarter

While the total number of General Motors stockholders in the last quarter of this year showed an increase of 1640 over the previous quarter, there was at the same time a reduction of 1587 shareholders from the corresponding quarter of 1933. The corporation reports that the total of third quarter stockholders is 350,164 compared with 349,524 for the third quarter and 351,761 for the corresponding quarter of last year.

There are 330,823 holders of the common stock and 19,341 preferred stockholders for the last quarter against 330,475 common, and 19,049 preferred stock owners for the previous quarter of this year, according to the corporation's report.

## Joseph L. Hardig

Joseph L. Hardig, vice-president and general manager of the Campbell-Ewald Co., Inc., died last Tuesday in the Henry Ford Hospital at Detroit. He was 42 years old. Born in Cincinnati, Mr. Hardig graduated from the University of Cincinnati and joined the advertising company in 1921. He is survived by his wife, Mrs. Mabel Ritchie Hardig, his mother, a son, Joseph L. Hardig, Jr., and a daughter, Caroline.

## CALENDAR OF COMING EVENTS

### SHOWS

New York Automobile Show.....Jan. 5-12  
Los Angeles Automobile Show.....Jan. 5-13  
St. Louis Automobile Show.....Jan. 6-12  
Cincinnati Automobile Show.....Jan. 6-12  
Washington Automotive Assoc., Automobile Show.....Jan. 12-19, 1935  
Toronto, Canada Automobile Show, Jan. 12-19  
Newark, N. J. Automobile Show.....Jan. 12-19  
Buffalo, N. Y. Automobile Show.....Jan. 12-19  
Cleveland Automobile Show.....Jan. 12-19  
Milwaukee Automobile Show.....Jan. 12-19  
Detroit Automobile Show.....Jan. 12-19  
Springfield, Ill., Automotive Show, Jan. 13-20  
Brooklyn, N. Y. Automobile Show.....Jan. 14-19  
Philadelphia Automobile Trade Assoc.—Automobile Show.....Jan. 14-19  
National Motor Boat Show, New York.....Jan. 18-26  
Toledo Automobile Show.....Jan. 18-24  
Columbus, Ohio Automobile Show, Jan. 19-24  
San Francisco Automobile Show.....Jan. 19-26  
Boston Automobile Dealers Assoc.—Automobile Show.....Jan. 19-26  
Pittsburgh, Pa. Automobile Show, Jan. 19-26  
Hartford, Conn. Automobile Show.....Jan. 19-26  
Syracuse Automobile Show.....Jan. 19-26  
Nashville, Tenn., Automobile Show, Jan. 20-26  
Baltimore—Automobile Show.....Jan. 21-26  
Rochester Automobile Show.....Jan. 21-26  
Chicago Automobile Show.....Jan. 26-Feb. 2  
Montreal, Que., Automobile Show, Jan. 26-Feb. 2  
Springfield, Mass. Automobile Show, Jan. 28-Feb. 2  
Lancaster Automobile Show.....Jan. 29-Feb. 2  
Harrisburg Automobile Show.....Jan. 30-Feb. 2  
Omaha Automobile Show.....Feb. 3-9

Kansas City, Mo. Automobile Show, Feb. 9-16  
Denver, Colo. Automobile Show.....Feb. 10-23  
Peoria, Ill., Automobile Show.....Feb. 13-17  
Bethlehem, Pa., Automobile Show, Feb. 18-23  
Evansville, Ind. Automobile Show.....Feb. 23-27  
Minneapolis Automobile Show.....Mar. 9-16  
Mankato, Minn. Automobile Show, Mar. 16-23

### MEETINGS

Automobile Trade Association Managers Midwinter Meeting—New York.....Jan. 6

### ANNUAL MEETINGS

Society of Automotive Engineers—Annual Banquet—New York.....Jan. 7  
Motorcycle & Allied Trades Assoc., New York City.....Jan. 9  
Overseas Automotive Club Annual Show Luncheon, New York.....Jan. 10  
American Engineering Council, Washington, D. C. ....Jan. 10-12  
Society of Automotive Engineers—Annual Meeting—Detroit.....Jan. 14-15  
American Roadbuilders Assoc., Washington, D. C. ....Jan. 22-25  
Automotive Parts & Equipment Mfrs., Inc.—Chicago.....Jan. 29

### CONVENTIONS

National Automobile Dealers Assn., Detroit.....Jan. 14-15  
Lafayette, Ind. (Purdue University), Automotive Service Conference, Mar. 21-22



# The Horizons of B

## The Recovery Jam

SOME months ago we recorded in these pages the commendable effort of the Treasury Department to discover the real reason for the failure of banks to make loans to industry. Up to that time many of the spokesmen of the Government—and in most cases this position was taken in all sincerity—held that the failure of loans to expand was the result of excessive timidity on the part of the banks, downright anti-recovery malice or both. The position of these men was strengthened by a substantial body of highly respected academic opinion which held that business and prices could be made to turn somersaults, giant swings and leap through flaming hoops of fire under a deliberate control of credit.

It was only necessary for the controller-in-chief to place himself at the throttle, turn on more credit when industry and prices showed signs of languishing and shut down when the symptoms of an unhealthy speculative boom made their appearance.

The entire group of economists who explain the business cycle in terms of credit share to a greater or lesser degree this view. The most extreme form of the theory was expressed by Knut Wicksell, the preceptor of the venerable Gustav Cassel, Swedish economist, at a meeting of the Royal Economic Society in 1907. Said the Scandinavian savant:

"If, other things remaining the same, the leading banks of the world were to lower their rate of interest, say 1 per cent below its ordinary level, and keep it so for some years, then the prices of all commodities would rise and rise

and rise without any limit whatever; on the contrary, if the leading banks were to raise their rate of interest, say 1 per cent above the normal level, and keep it so for some years, then all prices would fall and fall without any limit except zero."

### Faith in Miracles

A belief that defies numerable experiences to the contrary, becomes an obsession, a fantasy or a legend and the faith in the efficacy of the discount rate and bank credit as controlling agents in the business cycle possibly partakes a little of all three. The theory discovered a modest validity in the experience of the Bank of England in the London money market. The observation of credit action in this market led English economists to formulate certain principles regarding the potency of credit of which the expression by Professor Wicksell is perhaps the most extreme statement. These ideas were transmitted lock, stock and barrel to American economists who have taught them to their students for generations. The result is a broad faith in the ability of the banking system to perform miracles. Hence if some of the spokesmen of the Government conclude from the failure of bank loans to expand that the banks themselves are at fault they have some authority for their position.

It is for this reason that the effort of Mr. Morgenthau to discover the real difficulty behind the failure of bank loans to expand is commendable. In addition to information for its own sake, Mr.

Morgenthau had an immediate practical problem on his hands. Congress in a genuine desire to help where the banks had failed placed a total of 580 million dollars at the disposal of the RFC and the Federal Reserve Banks to lend to business. The grand total of loans made by these two agencies under the authority granted by Congress did not exceed four million dollars. Thus when Mr. Morgenthau set two able economic sleuths, Professor Viner of Chicago and Dr. Hardy of Brookings, on the case to solve the mystery of the loans which were not made he had both a theoretical and a practical interest in the problem.

### A Mystery Solved

The answer which the investigators brought back from the Windy City where the study had been made was quite simple. "Congress," said these students in effect, "authorized the RFC and the Federal Reserve Banks to make loans to industry on *adequate security*. This meant that a borrower must be able to persuade the lending official that he has reasonably certain prospects of converting the funds into goods and services, selling these products at a price sufficient to enable him to pay back the loan and leave a more or less modest margin as a reward for his own services and risks. This is precisely the test which the banks of the country have been applying to their own loans. There are not enough prospective borrowers able to offer a bankable assurance of repayment."

Here then is an official solution of a mystery which has been no mystery to bankers. Business men who need credit and who be-

# Business

by Joseph Stagg Lawrence

lieve that they can convert a loan into merchandise which in turn can be sold at a price sufficient to make repayment possible are not present in any abundance and of those who have persuaded themselves that such an opportunity exists only a small portion have been able to sell their own optimism to the bankers who provide the funds. It may well be as Professors Hardy and Viner point out that the continuous, severe criticism of the bankers for the losses incurred during the past has created in them an excessive determination to avoid the repetition of previous mistakes and that this caution, coming at that phase of the cycle where commercial banks should take risks—even to the extent of making capital loans—is interfering with recovery. The importance of this timidity as a factor in recovery has in the judgment of the investigators been exaggerated. It is not necessary or possible here to pursue the findings to greater detail. The single major conclusion which is now corroborated beyond question is this: business recovery cannot be materially promoted by trying to force credit into circulation.

## Making Eligible Borrowers

This being the case what is the next step? Clearly it is the discovery of the reason for a scarcity of eligible borrowers. The problem is to create credit applicants to whom the banks can lend funds on "adequate security." This security in the main does not consist of collateral or competent endorsers. By and large it consists of an ability on the part of the borrower to engage in a business operation and emerge with a profit. The Government is gradually recognizing this. The reduction of interest

rates through various governmental lending agencies is helpful. Here, as with power provided by the Government, the cost importance of the item in a typical aggregate of business expenditures is limited. At two points the influence of the Government would be most helpful in creating that capacity to borrow which now stays recovery. The first is taxation. In view of the serious relief burdens which must be carried it is difficult to expect any early reduction in this cost item. The second is labor.

In every business statement the items, material and labor, loom large. Since material in most instances is only the physical embodiment of human services this item in turn is reducible to working hours and labor costs. As the business man and the banker look at the problem the starting point is the market. At such and such a price it is possible to sell so many mouse traps. This being the case is it possible to assemble the requisite labor and material at a cost which will permit the satisfaction of that demand at a reasonable profit? If labor asks more than the market price of the finished product warrants then obviously the ball game can never get under way. During a period of depression and in the first stages of recovery this market is extremely price conscious. A slight rise will freeze a substantial number of inclinations to buy. It is necessary to offer the utmost attractions in order to dissolve the residue of great caution which the buyer carries with him from the period of distress at the bottom of the cycle.

## The Jam Log

If the worker at this stage takes a high position and demands a "living wage" as calculated by theorists whose realism is questionable he at once defeats his own best interests. It is not now a question of dividing profits between the worker and the stockholder but rather of breaking the buying jam which has developed in the hard years. In this matter the worker has been poorly advised. His leaders have taken conspicuous and rather exceptional cases where corporations are making a profit, insisting that these concerns are typical and that industry therefore can well pay higher wages long before normal buying impulses have been revived.

This ignores the obvious fact that every industry has numerous units some of which through optimum management, exceptional location, organization, patents or other reasons can show profits in lean as well as in fat years. At the other end of the scale are companies which experience the greatest difficulty in making ends meet even in prosperous years. Thus in 1928 and 1929 40 per cent of our reporting corporations showed no net income. To facilitate recovery it will be necessary for the working man to take a broader view, a view which will tolerate the survival of other than the most efficient units in industry. This is the log which more than any other accounts for the recovery jam and explains the absence of borrowers to whom banks can make loans on "adequate security."

# VOLUME—1935's A

**D**ESPITE justifiable optimism among automotive executives about 1935 sales totals, there is evidence that the industry as a whole will be more tempted to volume-chasing in 1935 than at any time since the pre-depression era.

This conclusion forms itself out of talks with executives about their plans and problems, out of study of economic tides within and about the industry and out of close-range contact with present cross-currents in the byways of the automotive business.

It is equally evident, however, that executives are in no mood to yield to the allurements of a volume-at-any-cost philosophy. Memories of greatly increased production without comparably advanced profits have faded from few minds. New experiences of the last year have refreshed those memories.

Yet the possibility of strong temptation to force volume next year is recognized in many quarters. In 1934, it is pointed out, sales have been stepped up about 40 per cent, yet only a minority of vehicle producers will finish the year in the black. Parts companies on the average have fared better, but even in that field more than a few bottles of red ink have been consumed this year despite marked improvement in sales.

Manufacturing costs have gone up all along the line; there can be no doubt about the effect of NRA on production expense. Last spring when car prices were increased in an attempt to collect from the public some reasonable proportion of the manufacturing expense advance, people just stopped buying automobiles as fast as they had while the lower prices were in force. Some executives look for higher prices next year because of further cost increases, but the more analytical see little hope of stepping up the f.o.b. materially without again causing serious recessions in buying.

Unit profits this year—in the last half particularly—have been thoroughly unsatisfactory all along the line. Some of the companies which

made the best sales showing in 1934 came out worst from an earnings standpoint.

The only "out" then, in the minds of many executives, is more volume.

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The temptation to force volume will be strong in 1935.

\* \* \*

Many lines are being priced on the basis of sales expectations far in excess of 1934.

\* \* \*

Estimated outputs of individual makers aggregate 3,500,000 to 4,000,000 units.

\* \* \*

Ford will be a more influential factor next year than at any time since the Model T.

\* \* \*

Introduction of one or more cars selling under \$400 may be one of the year's outstanding developments.

\* \* \*

Provision of more stable employment a problem which the industry will make progress in solving this year.

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Many lines are being priced on the basis of volume expectations far in excess of 1934. If general business actually improves in the next six

months so that 3,500,000 to 4,000,000 motor vehicles can be sold next year at something like current prices, then we can look for prosperity to be spread around pretty generally.

But if the total volume for 1935 stays within the 2,500,000 to 3,000,000 area, some individual companies are going to end next year with hopes unfulfilled.

Production estimates can be extracted from executives these days more easily than at any time since the end of 1929. Ford's public announcement that he expects to build 1,000,000 cars next year may have something to do with this, there being a natural disposition on the part of each company not to be out-estimated by anybody. On the other hand, the reaction of dealer organizations to the new lines which they have been shown in confidential meetings, actual advance orders which have poured into many of the factories following these showings and definite evidences of renewed retail activity in many parts of the country unquestionably form the sound basis for much of the current optimism.

A hasty totaling of estimated production for individual makes gathered from public statements and confidential interviews with executives within the last two weeks indicates that a 3,500,000 to a 4,000,000 car year will be needed if expectations are to be met. Some of the expectations, of course, are predicated on the belief of individual makers in their ability to procure a larger proportion of the total sales in their given price classes. Every individual interviewed, however, expects to get a measurable increase next year.

No doubt seems to exist in any executive's mind that Ford prices, policies and merchandise in 1935 will have a stronger effect on the course of the industry as a whole than at any time since the Model T was at the peak of its powers.

While the time may never come again when the entire industry adopts a "Watch Ford" attitude before going forward with design and



# Automotive Goal

Higher prices, regarded as impractical so in the face of increased costs, industry stakes hopes for profit on expanding sales

merchandising plans, it is probable that the Dearborn independent will be watched more closely in the next few weeks and months than he has been in recent years.

On phase of Ford policy that has everybody guessing relates to whether or not he will bring out the under-\$400 car which he is said to have had developed for some time.

Particularly is this true because more than one other manufacturer has been evincing serious interest in the possibilities of this field. Following considerable academic argument about such a car during the last five years, some definite investigations of consumer attitude have been made in recent months. While there is no way of knowing the results of such studies, a number of constant trend-watchers think that there is more chance of favorable reaction to a "transportation" car than there has been in the past.

Should next spring or summer see the introduction of several cars at a new low-price level, certainly the chances of getting a total volume in excess of 3,500,000 vehicles would definitely be bettered.

There is no indication that dealer discounts will be increased next year, most factory executives taking the position that discounts as such have little to do with the net profit achieved by the dealer. One executive, talking with a dealer group, summarized a fairly general opinion when he said:

"Discounts are just as much a dealer as a factory problem. Here at the factory we will do our best to deliver a car to you at the lowest possible price which will permit us to make a reasonable profit. From there on the problem is yours. If the discount is to be increased, the list price

must be increased. If the list price is increased enough, people won't buy automobiles. We are making the best guess we know how as to what combination of list price and discount will yield you dealers the greatest net profit."

There isn't any discernible move to increase the size of dealer territories. Factory need for volume is more likely to develop more intensive cultivation of given areas. Competition will be stiff again next year, even if considerable improvement in general business is experienced.

The automotive labor situation must be considered quiescent rather than settled, yet there are indica-

without gaining the conviction that their thinking along these lines is dominated by practical sincerity. "We aren't merely interested in taking action which can be dramatized in a report or a recommendation," was the way one leader put it. "For many months now we have been at grips with the problem in all of its aspects and we are determined to get the automotive employment curve straightened out more than it is if it is humanly possible to do so. Already we have a record of some progress behind us—but my personal belief is that we are going to make plenty more advances in the next twelve months."

Much difference of opinion exists as regards the efficacy of staggered new model announcements in promotion of greater employment stability. Leaving aside the dealer angle—which sales executives consider very important—there are those who believe that concentration of new model announcements at a time when sales normally sag would do more toward stabilizing production than an attempt to stagger model announcements throughout the year. Third and fourth quarter sales, this group contends, might be sufficiently stimulated by late summer or early fall announcements to increase measurably the percentage of the year's total business done in these months. The good effects of such a move would be obviated to a large extent, however, if *additional* announcements of importance came at the beginning of each year.

All of which leads to the belief that the question of national shows and automobile show dates again will be discussed at some length before final programs for 1936 are worked out.

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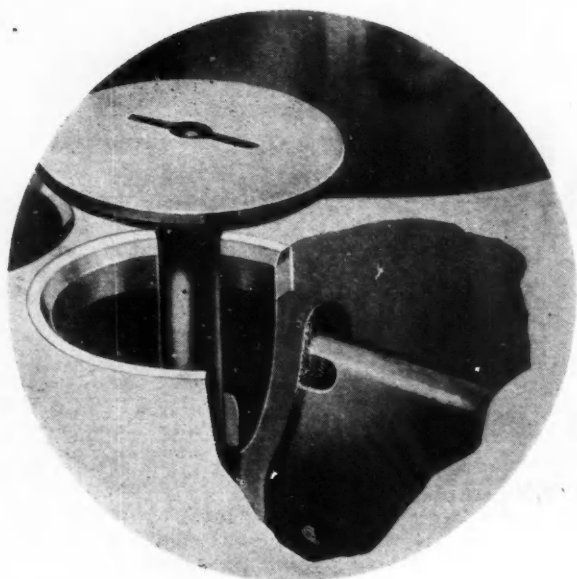
by Norman G. Shidle

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tions that the fundamentals of human relationships between automotive employers and their employees have improved during the year. This basic fact, certain important executives feel, is of more importance than all of the more or less legalistic and organization phases of the labor problem.

Despite the belief of some critics that the industry has indulged in a certain amount of shadow-boxing with the President as regards stabilization of employment, one cannot talk today to individual executives closely identified with operations

# 1935 Dodge Has Se



Dodge engines have an inserted water-distributor manifold in the block to conduct cool water and direct it against the block near exhaust valve seats to keep the latter cool.

**D**ODGE BROTHERS for 1935 offers a line of cars on a single chassis with a wheelbase of 116 in. These cars have striking new lines, an improved weight distribution brought about by moving the engine 8 in. forward, soft front springs of a new alloy known as Mola steel, a synchronized-shift transmission, increased power, and improved brakes.

Independent front springing, free-wheeling and the automatic clutch have been dropped as standard equipment, though the last-mentioned feature probably will be available at extra cost.

The change in body lines is due to a considerable extent to the redistribution of weight, which permitted moving the seats forward several inches and increasing the slope of the rear body panel without increasing the over-all length. By moving the body and engine ahead, the radiator core and the more sloping and narrower radiator grille also were moved forward, and the core is now well ahead of the front axle. Other appearance changes are due to the provision of new hood louvers, airplane-wing type of sheet-metal spacers between radi-

ator shell and fenders, and the addition of skirts to the fenders.

Parking lights are sunk in curved panels on opposite sides of the radiator. Headlights are mounted on top of this "catwalk," on "airfoil" brackets. Windshields are decidedly more sloped than last year. Front doors are wider and hung on the front pillars. Spare tires and wheels are concealed in the rear of the cars, in a horizontal position, with space for packages, etc., above them.

Bodies are materially wider than last year, and the seats are widened correspondingly.

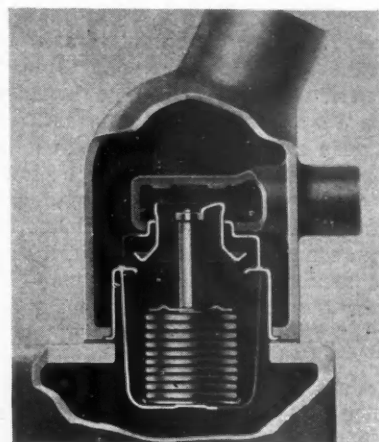
Floors are lower, for increased leg room, and tunnels for the propeller shaft are included in the floor stampings. Owing to the tunnels, there are two separate foot rests in the rear compartment. Tools are now carried under the front seats of all cross-seat models, in a special compartment fitted with clips which prevent them from rattling.

Instruments are once more located in the center of the instrument panel. The panels carry ashtrays, removable for the mounting of radio controls. Rear curtains are of the concealed-

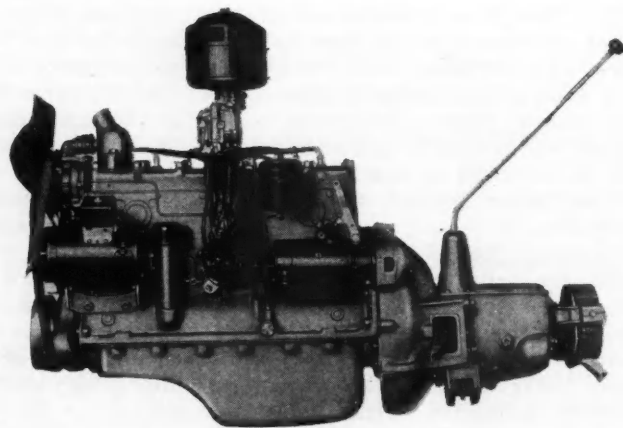
mounted type, pulling up from the bottom. Sun visors are of a transparent colored material which gives protection against glare without shutting off vision entirely.

The cars are lower in overall height, with bodies extended down to the running boards, with lower roof lines made possible by dropping the floors 3 3/4 in. (total) and with the 16 in. wheels used as standard.

In the chassis the most interesting development is in connection with the front suspension. In principle it fol-



New type by-pass thermostat used in the Dodge cooling system.



Left side view of powerplant showing new ventilated generator, vacuum spark control diaphragm back of distributor, etc.

lows the idea carried out in the Air-flow models for 1934, with greater concentration of load on the front axle and softer springs, the effect being to reduce the rate of the front springs to 115 lb. per in. of deflection at the wheels. This is actually lower than that used with Dodge's independent suspension last year (125 lb. per in.). The weight of the car is nearly equally divided between front and rear axles.

The springs look like conventional semi-elliptics, but the leaves are thinner and there are more of them. Development of the new spring steel alloy, credited by Dodge Brothers to C. Harold Wills, has made possible the remarkably low spring rate for the length of spring used. The new alloy is said to have a much higher tensile strength, so that the factor of safety is

# Semi-Elliptic Front Springs

Weight redistributed to put  
more load on front axle—  
Bodies have striking new lines

quite high although spring stresses naturally are markedly increased.

For additional safety, spring eyes are double wrapped, both the main leaf and the second leaf being completely wrapped at the spring eyes. To permit relative motion of the two upper leaves, the second leaf is split at the center, with a spacer between the first and third leaves at the U-bolts.

All spring leaves are tapered, to provide better load distribution and prevent load concentration at the ends, resulting in excessive friction. The halves of the second leaf are tapered at the inner ends to prevent binding, since these inner ends move in and out relatively to other leaves, as the spring is deflected.

All leaves are ground before heat-treatment, to remove any surface nicks or cracks that might result in fatigue failure.

Supplementing the leaf springs is a

torsional spring which connects the two front axle ends. This is largely an anti-roll device, of course, but its use at the front end of the car is new to this country at least. Moreover, the torque rod is carried on the axle rather than on the frame, and it carries an arm at each end, from which there is a connection by links to the frame. Fairly soft rubber spacers are used at the ends of these links, so that a certain amount of relative motion of the two wheels can take place without bringing the torque rod into play.

The latter arrangement gives a very soft springing on good road. When there is a tendency to large relative motions of the two wheels with respect to the body of the car, or vice-versa, as in rounding turns at high speeds, the torque resistance of the rod is added to the resistance of the leaf springs, relieving the load on the latter

and increasing the spring rate. This tends to keep the body on a more nearly even keel.

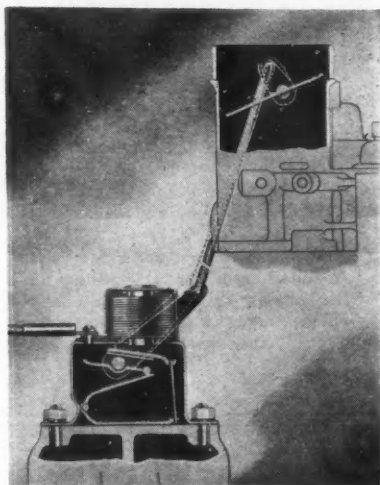
The retarding action of the rubber mountings in such cases is obvious, and should do much to eliminate 'harshness.'

Mounting of the torque rod on the axle is said to take out axle roll and to improve steering and front-end stability.

In adopting this suspension, Dodge has reverted to a reverse-Elliott-type tubular axle, and cross-steering similar to that used on the 1933 models. Frames are also similar in general design to the Dodge DA frames used that year.

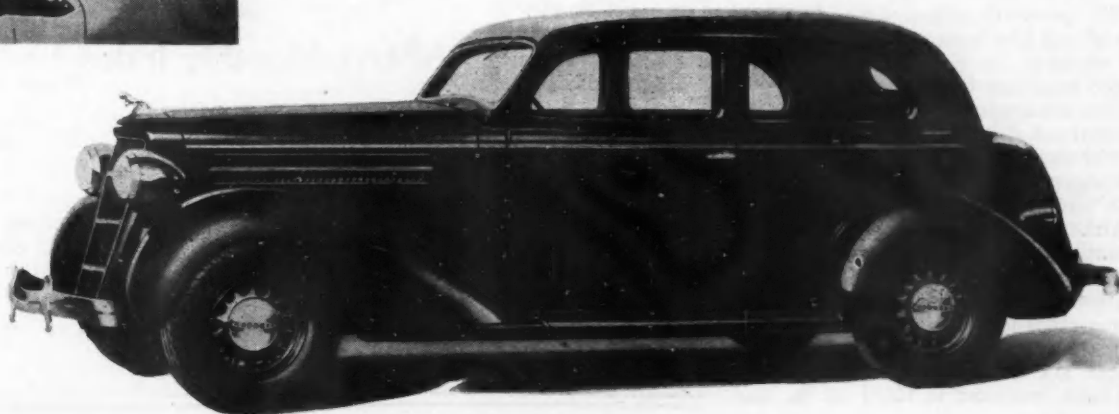
Front springs have no anti-squeak inserts such as oilite, but are fitted with covers at extra cost. Rear springs are provided with spring covers. These springs have a rate of 115 lb. per in., and are provided with threaded shackles, as in 1933.

A number of important refinements have been incorporated in the power-plant. The chromium and nickel contents of the iron for the cylinder block



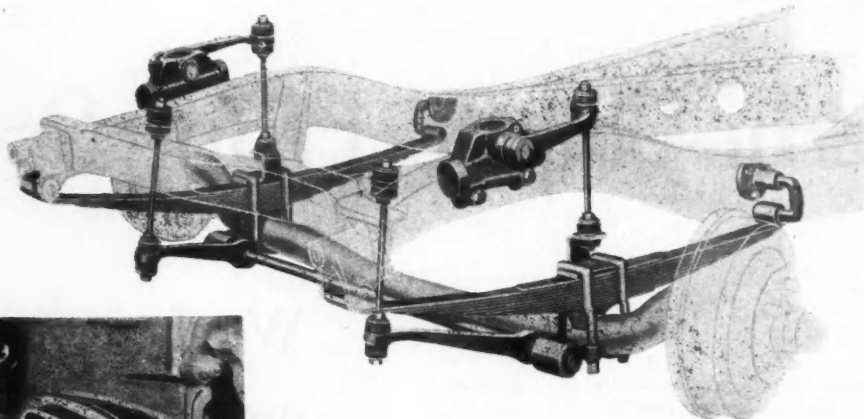
Details new automatic choke  
on 1935 Dodge models.

Dodge two-door sedan with trunk. Bodies are lower, by dropping the floor height and carrying body down virtually to running board level. Note the new fenders.

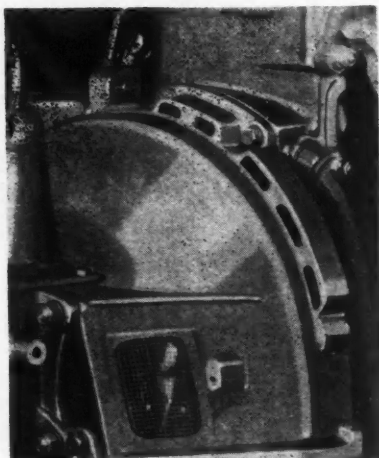




Phantom view of the front suspension on the 1935 Dodges. Semi-elliptic springs are once more used, but they are of new design and softer and accompany a redistribution in weight. Note the use, also, of an anti-roll torque rod as used on a number of cars in connection with rear suspensions for 1934.



Clutch housings are ventilated and provided with screens.



have been increased, for longer life of wearing surfaces. The cylinder head casting (iron) is braced between water spaces to prevent high-speed reverberation. The compression ratio has been raised to 6.5 to one, and to prevent detonation under wide-open-throttle conditions, as during acceleration, vacuum spark control has been added. Combustion chambers have been modified to increase turbulence and breathing capacity. The net result is a material increase in power without increase in displacement.

A wedge-shaped tube in the block acts as a water distributor and directs jets directly at portions of the block adjacent to the exhaust valve seats, to reduce temperatures at these points and increase valve life. Crankshafts are provided with Lanchester-type dampers at the forward end. Compression rings have a narrow undercut at their lower edge, to serve as an oil conveyor to lubricate the upper portions of the cylinder walls.

The pressure required to disengage the clutch has been reduced to 26 lbs., by changes in the linkage, and the clutch housings is well ventilated.

The transmission has helical gears throughout, the same as last year. A synchronizer of the fairly well-known ball-detent type is provided between high and intermediate gears.

Although floating-power engine mountings are retained, the gearshift lever is once more mounted on the transmission housing, instead of on a frame cross-member.

In the braking system, Centrifuse drums are standard; the lining area has been increased to 154% sq. in., and

the actuating hydraulic cylinders at the wheels have been increased in size accordingly.

Standard accessories now include an automatic choke, a thermostatic heat control, and a ventilated fan-cooled generator with 20 per cent more capacity than the generator of former models. Overcharging is prevented by means of a voltage limit relay.

Starter engagement is by positive shift, by means of separate starter pedal. An electrical connection from the starter motor switch to a solenoid at the automatic choke provides additional choking action during the time the pedal is depressed. At all other times choke operation is thermostatic, the valve being closed at zero manifold temperature, about half open at 90 deg., and fairly open at 180 deg.

Instrument panels are illuminated

directly with two bulbs, each of which can be lit separately.

Body ventilation in the new Dodges differs from last year in that there are no front door wings, the door glass sliding backward when cranked beyond its fully-raised position. Rear-quarter sedan windows raise and lower in the normal manner, but drop down farther, due to the greater depth of body panel available by moving rear seats forward of the axle. Cowl ventilators are larger and screened.

Rear shock absorbers are single-acting; front, double-acting.



Built-in trunks on Dodge cars when specified are available either as shown here or with a single large compartment, if fender wells are specified for tires.

## APEM Monthly Index

(Jan., 1925, equals 100)

	Oct. 1934	Sept. 1934	Oct. 1933
Original Equipment Shipments to Vehicle Manufacturers	66	71	47
Service Parts Shipments to Wholesalers	135	129	109
Accessories Shipments to Wholesalers	107	101	91
Service Equipment Shipments to Wholesalers	61	60	47
GRAND INDEX (Composite) of above divisions	79	81	59
Index Car and Truck Production	57	73	59
Index General Business (Bank Transactions)	58	52	58

# Eaton Has Two-Speed Axle

**A** TWO-SPEED axle designed for trucks up to 12,500 lb. gross load and a maximum torque of 165 lb. ft. is announced by Eaton Mfg. Co. of Cleveland. Basically it is a higher capacity modern development of the well-known Ruxtell two-speed axle, which has been sold in considerable quantities and has been in successful operation on lighter trucks. The two ratios provided are 5.14 and 7.15 to 1.

With a four-speed gear box, the axle of course provides a total of eight forward speeds, which with an average truck transmission would run from the 5.14 ratio in direct to between 40 and 50 to one in low.

In operation, the shift seems fairly easy and materially simpler than the shift of the average truck transmission, in spite of the fact that no synchronizers are provided in the axle unit. This ease is probably accounted for by the fact that the transmission mechanism is located between the bevel gear and pinion assembly, and the rear wheels, and that it is of the under-drive rather than the overdrive type, thereby holding maximum speeds of the rotating parts which have to be shifted down to a low value.

In design the axle is like a conventional unit except that between the ring gear and differential is interposed a simple planetary reduction mechanism which, when unlocked, provides a further reduction ratio from the ring gear to the differential and axle shafts.

The mechanism consists of four planetary gears meshing with an internal gear on the ring gear carrier, these planetary gears in turn also meshing with a sliding gear which can be moved in and out to lock the mechanism or unlock it. In the "unlocked" position, the planetary gear carrier is locked to the differential and turns with it. In the "locked" position the planetary pinions rotate around the locking gear.

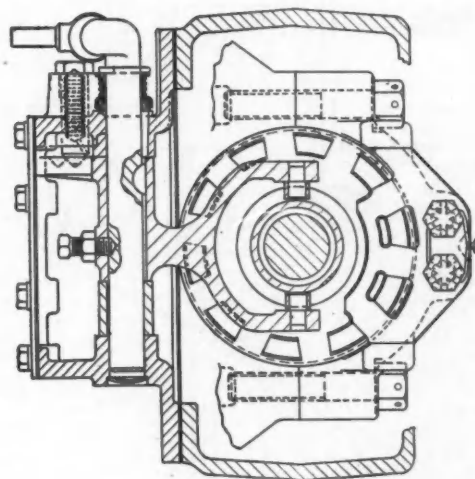
Being located between the ring gear and the wheels permits the use of a lower first reduction ratio than normal. This has the benefit, in addition to reducing engine speed in direct drive, of increasing the size of driving pinion, making for a stronger drive mechanism than with the conventional compromise axle ratio. Furthermore, the use of an under-drive type of arrangement such as this involves no increase in propeller shaft speed to obtain the greater reduc-

tions possible with the two-speed axle. There is also no increase in torque on any units of the truck with the exception of the axle shafts when ratios are increased through the planetary mechanism.

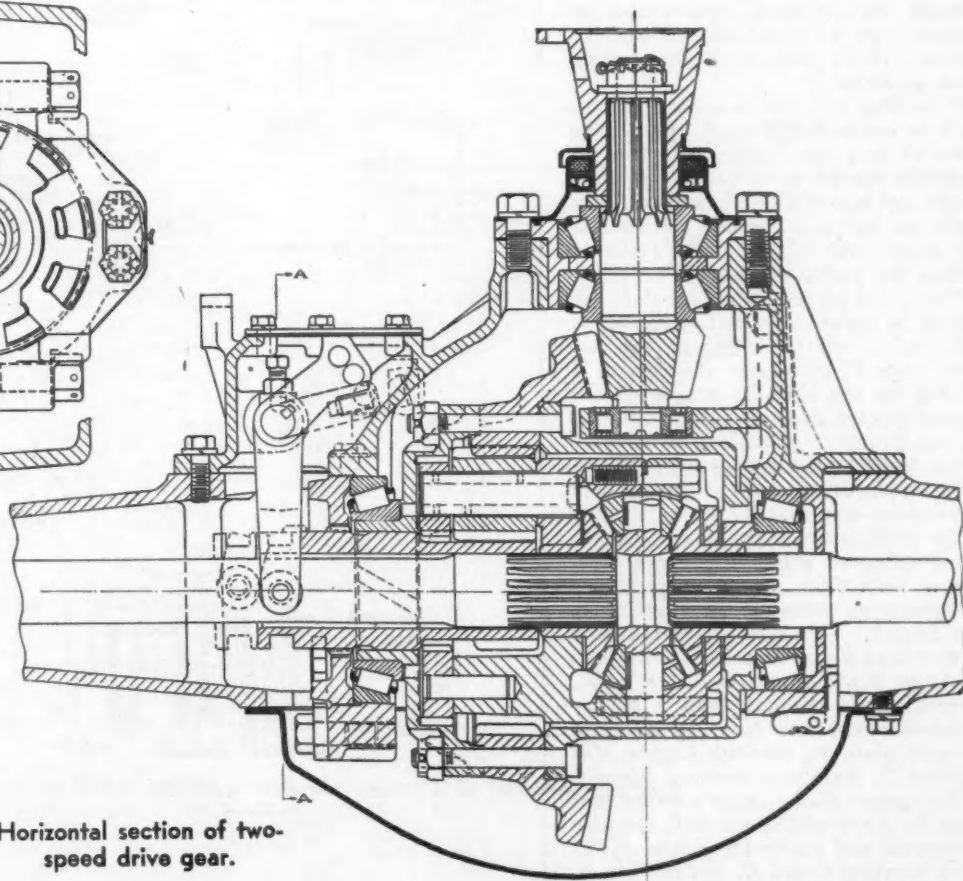
No special lubricants are required for the planetary mechanism. As to other details of the axle, the assembly is of the full-floating type, with a one-piece cast housing, and axle shafts forged integral with driving flange.

The pinion is of 5 per cent nickel steel, is straddle mounted, and the bevel gear, with which the planetary internal gear is integral, of 3½ per cent nickel steel both heat-treated and hardened. Axle shafts are 1¾ in. in diameter at the spline, and have a minimum diameter of 1½ in. Planetary sun gear and pinions are of 3½ per cent nickel high carbon steel, heat-treated.

With the use of a two-speed axle, a change speed is also necessary, of course, for the speedometer drive, if this is taken off the transmission. A simpler method, however, would be to take the speedometer drive off the front wheels.



Section on line A-A of horizontal section.



Horizontal section of two-speed drive gear.

# How the Hudson-Bendix

A GENERAL description of the vacuum gear shift available on next year's Hudson and Essex cars was given in the announcement of these cars in Automotive Industries of Dec. 15. The diagrams reproduced here-with show how the gear shift is operated.

Fig. 1 shows the shift mechanism in the neutral position, with the shifter finger to the right. Let us now move it into the position for low gear. The movement across the gate establishes the primary contact between main lead 10 and lead 11. Assuming the clutch to be depressed and the circuit breaker closed, this results in energizing solenoid 3, pulling down its valve and admitting vacuum to the diaphragm cylinder. This moves the diaphragm back against spring Y, rotates bell-crank F clockwise, moves shaft E to the right and causes shifter A to engage into a notch in shifter rod C.

Movement of the diaphragm has also caused a rotation of the interlock switch to the position shown in Fig. 2. Movement of the finger forward into the "low gear" position has connected contacts 13 and 16. Current now passes from main lead 10 through lead 12 through the interlock switch back to contact block 13 of the selector and out through 16 to plate P of the contact plate assembly.

From Fig. 1 it will be noted that this plate is connected through the sliding block O and its fingers, to plate T. Thus the circuit to solenoid 1 is completed, the latter is energized and pulls down its valve, admitting vacuum to the upper end of the shift cylinder, moving the piston upward.

This rotates crank G and rod E, resulting in forward motion of shifter A and shifter rod C, engaging the low gear. Link D, of course, moves with A so that as the shift is completed the contact fingers slide off plate P, breaking the circuit to solenoid 1. The valve of the latter under spring pressure returns upward, vacuum is broken and atmosphere admitted to the upper side of the shift cylinder piston. The latter is now balanced with atmospheric pressure on both sides.

Suppose we now shift the finger lever into second. This connects main lead 10 with lead 9 and contact 13 with lead 14. If we now depress the clutch pedal, current starts through lead 9 to the interlock switch and (see Fig. 2) from there to plate W, through fingers MM to plate U, thereby energizing solenoid 2. Movement of the latter's valve connects the lower end of the shift cylinder to vacuum and starts the piston downward, rotating G and E, and moving A, shifter rod C and link D backward.

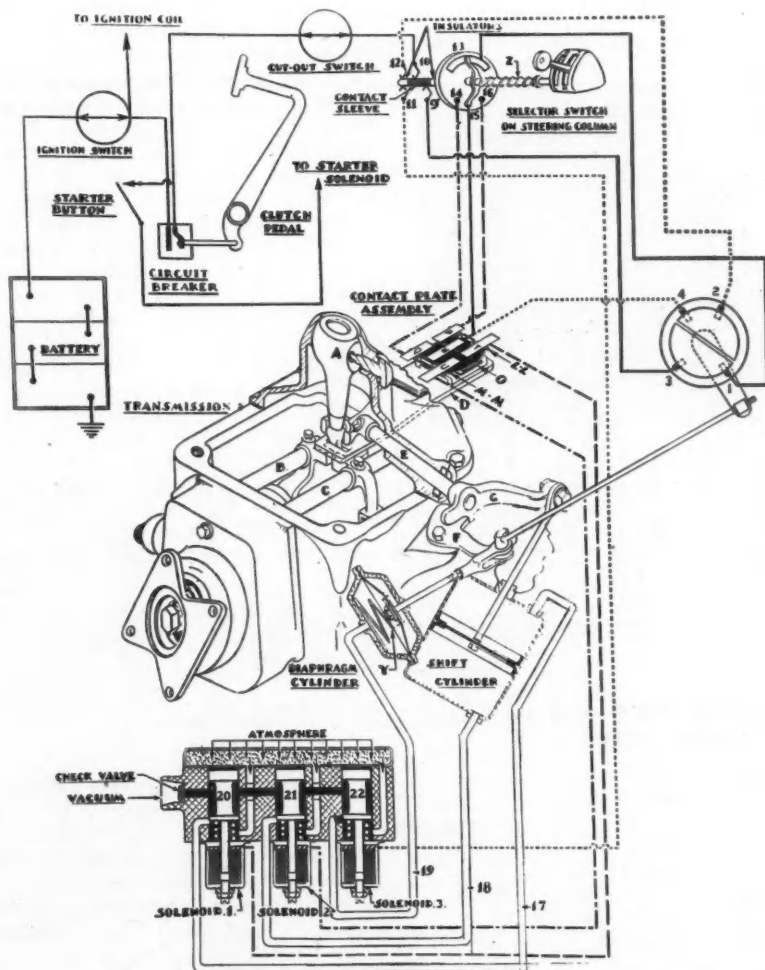
As the piston reaches the central position, fingers MM slide off plate W, breaking the circuit and de-energizing solenoid 2, thereby readmitting atmosphere to the lower end of the cylinder. The piston then stops momentarily. It will be remembered, however, that the diaphragm cylinder was left with the spring compressed, after the shift into low was completed.

With the circuit to solenoid 3 broken, spring pressure tended to return crank F and rod E to the position shown in Fig. 1. Shifter A, however, could not move across the gate with gears engaged until the notches in shifter rods C and B were directly opposite each other.

With the shift cylinder piston in its

central position this has now occurred, and the force of spring Y, through the linkage mentioned, moves A across to engage the notch in shifter rod B, the transmission being in neutral.

At the same time, however, this movement of the diaphragm results in rotating the interlock switch to the position shown in Fig. 3, corresponding also to the position shown in Fig. 1. This establishes a new circuit through the interlock switch to contact 13 in the selector switch, and through lead 14 to plate Q, through fingers MM to plate U (see Fig. 1) to solenoid 2. Thus solenoid 2 is re-energized, vacuum is reconnected to the shift cylinder and the piston moves downward until fingers MM slide off plate Q again,





# Electro-Vacuum Shift Works

breaking the circuit, with second speed completely engaged.

In shifting from second to high the circuit is as follows: Main lead 10 through selector sleeve, through lead 9 to interlock switch, back to contact 13 of selector, through lead 16 to plate *P*, through fingers *LL*, to plate *T*, to solenoid 1. This admits vacuum to the upper end of the shift cylinder and the piston moves to the other end of the cylinder, rotating *G* and *E* and through *A* sliding *B* forward to engage the high-speed gears. At the completion of this motion the circuit is broken by fingers sliding off plate *P*.

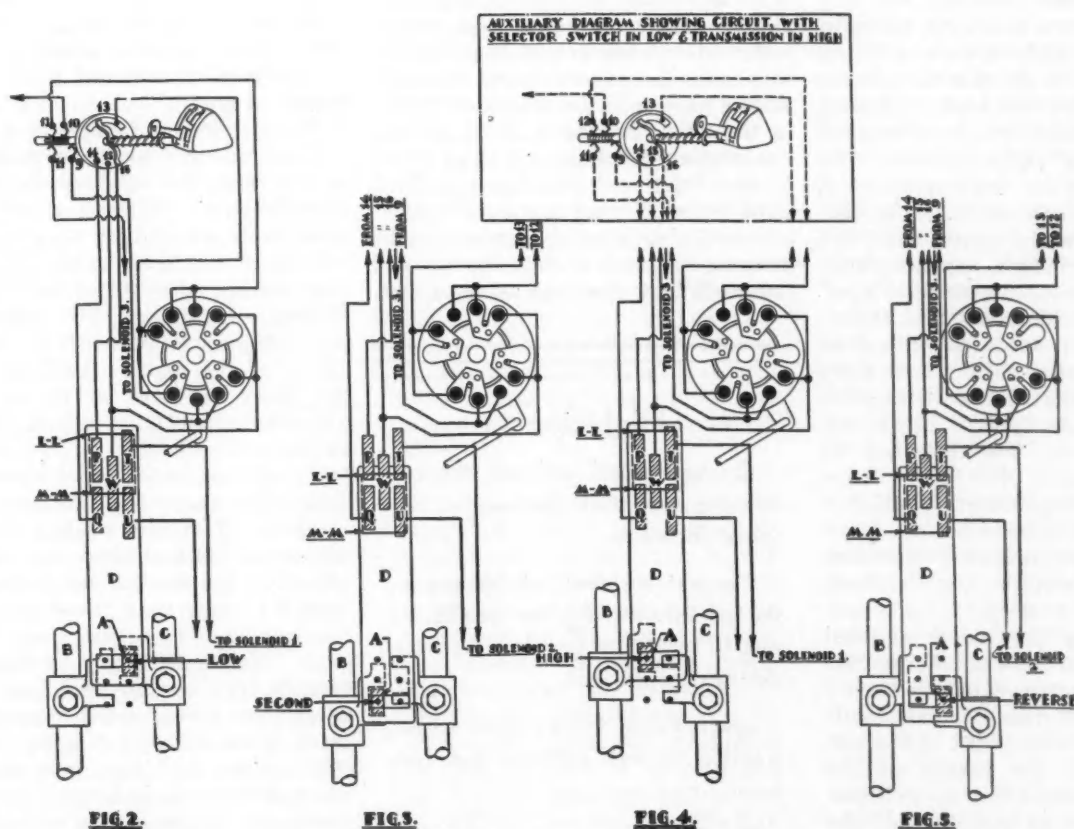
In shifting from high to low, current flowing through the contact sleeve of selector switch and lead 11 energizes

solenoid 3, connecting the diaphragm cylinder to vacuum. The latter cannot move, however, until *A* reaches the central position. At the same time a current flowing from 10 through 12 to the interlock switch to plate *W* and through *MM* to plate *U* energizes solenoid 2. Operation of its valve admits vacuum to the lower end of the cylinder, pulling the piston down to its central position and moving *A* and rod *B* to the central or neutral position. Here the fingers slide off *W*, breaking this solenoid circuit, and atmosphere is readmitted, halting the piston.

Shifter *A* can now move across to the notch in the shifter rod *C* under force of the vacuum in the diaphragm cylinder, transmitted through linkage

*F* and *E*. Simultaneously the interlock switch is rotated to the position shown in Fig. 2, creating a new circuit from 10 through 12 to the interlock switch, back to the selector switch at 13 and through 16 to plate *P*. The contact plate assembly being in position shown in Fig. 1, the circuit from here is through *LL* to plate *T*, energizing solenoid 1, admitting vacuum to the lower end of the cylinder and moving the piston up again. Through *G* and *E* shifter *A* is moved forward, sliding *C* into low-gear engagement. At the end of this movement fingers *LL* slide off plate *P*, breaking the circuit.

It may be noted that as long as the main circuit is closed by depressing the clutch pedal, solenoid 3 is continu-



Diagrams showing Bendix electro-pneumatic gearshift in different positions

ously energized when the selector switch is in the low- or reverse-speed position. In high, second or neutral, all circuits are broken when the shift has been completed.

If an automatic clutch is provided the circuit breaker in the clutch linkage is closed whenever the accelerator pedal is fully released, so that the shift to another gear can be made by pre-selecting while in one gear, and when ready for the shift releasing the accel-

erator momentarily.

Pre-selection is possible also without the automatic clutch, the latter only having the function of declutching and closing the circuit automatically.

A few details regarding the interlock switch may not be amiss here. It is composed of a round block having eight fixed contact points and an insulating rotor carrying four double-lobed connectors, serving to interconnect the fixed contacts according to the

position of the switch.

Note that a filter element is provided at the atmospheric inlet to the solenoid-operated valves, and that a check valve is provided at the same place in the vacuum line.

The high leverage provided through the linkage between operating cylinders and the shifter rods is claimed to be ample to obviate any chance of failure of the mechanism due to congealed oil in the transmission in cold weather.

## Skidding Tests Show Friction Coefficients Vary with Speed

A SYSTEMATIC study of the phenomena of skidding, with particular reference to the road factors involved, has been made at Iowa Engineering Experiment Station, Iowa State College, Ames. Coefficients of friction for new tread and smooth-tread tires on wet and dry surfaces were measured for both straight-ahead and sideways skidding at speeds of 3 to 40 m.p.h., using a two-wheel trailer test unit. Skidding forces were measured by means of an integrating dynamometer specially developed for the purpose.

Tests were run on asphalt, tar, road-oil, portland-cement concrete, brick, gravel, cinders, asphalt-plank, steel-plate, and wood-plank surfaces. Tests were run also on mud-, snow-, and ice-covered surfaces with and without tire chains. Many tests were made showing the effects of tire pressure, wheel loads, type of tire tread, and temperature. The tests are reported in Bulletin No. 120 of Iowa Engineering Experiment Station—"Skidding Characteristics of Automobile Tires on Roadway Surfaces and Their Relation to Highway Safety," by R. A. Moyer.

In measuring the forces opposed to side skidding, the trailer was connected to the towing truck in such a way that its longitudinal axis made an angle of 15 deg. with the direction of motion, the tongue of the trailer being connected to a transverse draft bar at the rear of the truck, with an additional connection to a rearward extension from the draft bar in line with the axle of the trailer, in which connection the integrating dynamometer was inserted. As the towing truck moved forward the trailer wheels rolled forward

with a side-skid motion, and the dynamometer directly measured the force which tended to cause the trailer to side-skid.

One of the most interesting relationships found is that the coefficient of road friction varies with speed. With most road surfaces it decreases as the speed increases, but gravel and cinder roads are an exception to this rule, the reason being that the wheels plow into the gravel or cinder as the skid progresses, thus providing mechanical resistance in addition to the frictional resistance. With some types of road surface the friction coefficient decreases greatly with increase in speed, so that the value of the coefficient observed at speeds of,

say, 3 m.p.h. is no criterion of its value at high speeds. This is best illustrated by the case of a penetration macadam surface with soft seal coat, which had a very high coefficient of friction (0.9) at 3 m.p.h. and a dangerously low coefficient of 0.2 at 40 m.p.h. The friction coefficient-speed curves for all of the different road surfaces show a decided tendency to flatten out with an increase in speed.

The significant feature of all tests on concrete and brick surfaces, wet or dry, was the relative uniformity of the results. With all of the variations in construction, location, and volume of traffic represented by the test routes, the variation in coefficients for similar test conditions was not greater than 0.1 in the majority of the tests. Coefficients for the brick surfaces averaged about 0.05 lower than those for the concrete surfaces. Coefficients for the smooth-textured concrete were generally lower than those for coarse-textured concrete. Test runs made during the spring of 1934 showed that the coefficients for smooth concrete averaged 0.1 lower than those for rough concrete under similar test conditions. The uniformity in the coefficients for concrete and brick surfaces when tested wet is more significant when compared with the coefficients for the bituminous surfaces, where differences as large as 0.6 were observed. It should be noted, however, that the coefficients for wet concrete and brick surfaces averaged 0.2 to 0.3 lower than the coefficients obtained on wet, high-type asphalt and tar surfaces.

Coefficients on wet snow, free from  
(Turn to page 779, please)

### High Spots

On hard road surfaces, the coefficient of friction decreases as the speed increases.

On wet surfaces, at 30 m.p.h., the straight-skid friction coefficient was 10 to 20 per cent less than the side-skid coefficient.

Low-pressure tires give better traction on wet surfaces than balloons.

The brakes on most cars tested were not able to take full advantage of the coefficients of friction which dry surfaces provide.

# JUST AMONG OURSELVES

## ALB's Selection of the Cadillac Plant

THE industry apparently is as much in the dark as organized labor as to why the Automotive Labor Board selected the Cadillac plant for the first election held to give effect to the proportional representation provisions of the automobile settlement. Statements issuing from A. F. of L. headquarters in Detroit seem to imply that the Board had some sinister motive in making the selection, while the industry admits it doesn't know. Our own guess is that Cadillac was selected by the Board because the plant is of moderate size and also because its location in Detroit makes supervision of the procedure more convenient. The importance of the latter reason is apparent from the fact that this election is the first the Board has held and for that reason will require closer attention than subsequent ones, when procedure will be more clearly defined.

\* \* \*

## Machine Tools Go Modern

AND now art enters the machine tool field with a vengeance. One prominent automobile manufacturer recently purchased a complete cylinder block machining line from one machine tool producer. This producer retained an artist to give the prominent parts of the equipment artistic modern lines. The effect should be quite striking when the tools are all assembled in the plant. Incidentally, we wouldn't be at all surprised if the unusually beautiful design of these tools may have had at least a little

something to do with the placing of the contract—which was not given to the lowest bidder.

\* \* \*

## A Campaign to Pre-Dispose Buyers

ALTHOUGH we have always been a little suspicious that maybe they didn't show what they were supposed to show, surveys purporting to prove that roughly 80 per cent of new car buyers make up their minds what make they will buy before exposing themselves to dealer sales effort appear to be exerting an important influence on the 1935 merchandising program of at least one important producer.

This company, we understand, will put on a nation-wide campaign of mass selling intended to predispose more buyers favorably toward its product. The idea behind the program seems to be to help more of the 80 per cent make up their minds that this company's car is the one they should buy. If this can be accomplished, it obviously means more buyers walking into salesrooms where the dealer can do his stuff.

Of course, this is the job that advertising in its various forms is supposed to do. The novel feature of the plan, however, is that among other things it is reported to include getting organizations of various kinds—luncheon clubs for example—to sponsor meetings for which this company will provide the entertainment and education. What the programs will be remains to be seen but presumably sales promotion will be skillfully worked into them in an effort to have the audiences more favorably disposed toward this company's product when they leave than when they came.

## Wide Roads Needed for Passenger Cars

JUST about a year ago the railroad propaganda mills turned out a pseudo-scientific study of highway transportation under the imposing title of "An Economic Survey of Motor Transportation in the United States."

Among other things this study presented formulas for taxing trucks and buses that would charge them all the cost of highway widths in excess of 16 ft. which was assumed to be adequate for passenger car service. Commercial vehicles also were to be charged all the additional costs of providing pavements strong enough to carry them and the extra cost of such pavements was said to vary as the square root of the axle load. The net result of it all was that commercial vehicles of more than 1½ tons capacity, representing 9.1 per cent of registrations, would pay 54.8 per cent of the taxes.

At the time, we analyzed these proposals critically and it is interesting to note that the position we took is supported in reports presented before the recent convention of the National Highway Research Board. One of these reports concludes that "There are more accidents of all kinds on 15 and 18-foot pavements than on 20-foot pavements carrying similar traffic . . . it is evident that wider pavements are needed much more because of passenger automobile accidents than because of truck and bus accidents." Another paper concludes that "widths, gradients, alignments and all other elements of design of modern highways, except possibly the thickness of pavement, are determined by the requirements of private passenger automobiles . . . heavier vehicles may require some additional thickness of pavement but it is probable that this increased thickness of pavement may be economically justified by longer life and reduced maintenance. In any event, the additional cost of the extra thickness for high-type pavements cannot be estimated at over \$2,000 to \$4,000 per mile."

—The Editors.



# Ford Improves Truck Line

**N**EW features of the Ford truck line for 1935 include improvements in the cooling system, brakes and front spring mounting, a new clutch, coupe-type cabs and rolled fender edges. The new line which was described briefly in last week's issue, is covered more completely in the following:

The radiator is wider than previously and affords 15 per cent more cooling surface. The water pump has a larger impeller and the fan has six blades and is 15½ in. in diameter. The water jackets extend the full length of the cylinder walls and along the upper crankcase walls, this water cooling of the crankcase tending to keep down the temperature of the lubricating oil.

A new clutch is fitted, of the heavy-duty truck type. The pedal pressure

required to release the clutch at low engine speeds is reduced. At higher engine speeds the pressure of engagement is increased by the centrifugal force on weights at the outer ends of the release levers. The new clutch has an outside diameter of 11 in. and a total friction area of 123 sq. in. The general design of the clutch has been simplified and its ventilation improved, to insure cooler operation.

Brake drums are of alloy cast iron, with integral cooling ribs and an extra-large reinforcing rib to prevent distortion. An actuating mechanism of new design is claimed to assure more nearly uniform distribution of brakeshoe pressure. Adjustment of the brakes is less frequently required.

Steering stability and riding ease

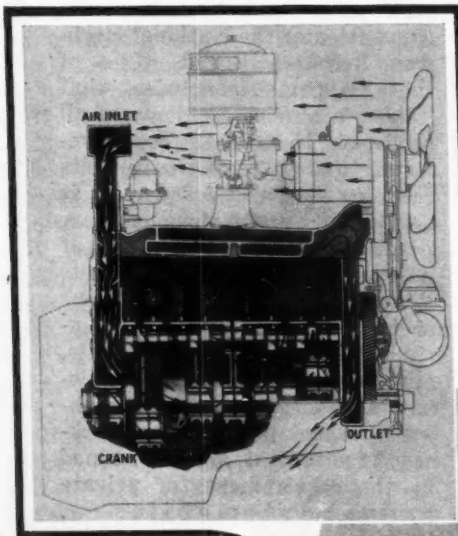
were improved by mounting the front spring 4 in. ahead of the front axle, which latter is of heavier design than formerly. The front spring is longer and its shackles are closer to the wheels.

The full-floating rear axle is continued. All driving and braking stresses are transmitted directly to the frame through the torque tube and radius rods.

Freely-shackled semi-elliptic rear springs support the frame at four widely separated points, resulting in a material reduction in frame flexure and body weave. Auxiliary springs, recommended for unusually heavy loads, are available on order.

The steering gear is of the "worm and sector" type, with 17 to 1 ratio for easy handling.

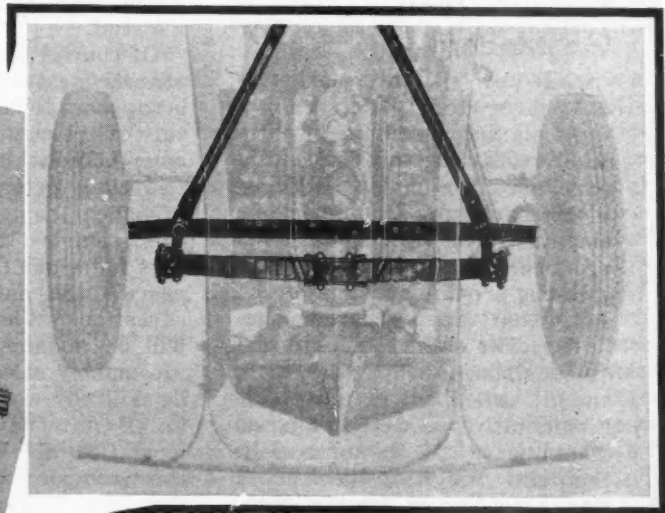
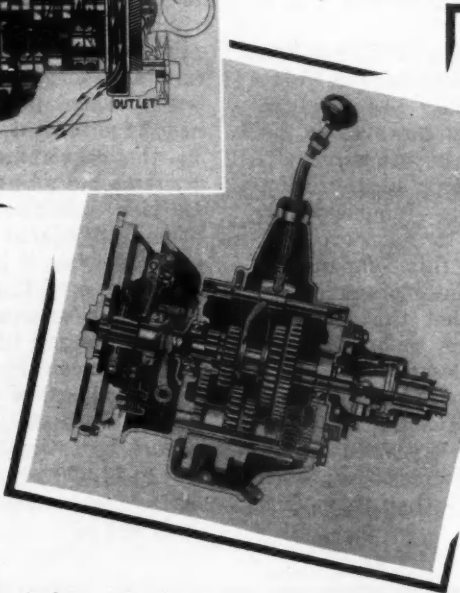
The new coupe-type cab is of all-steel welded construction, and is designed to give the driver passenger-car comfort. The adjustable driver's seat is of the tilting-back type, with comfortable mattress-top seat cush-



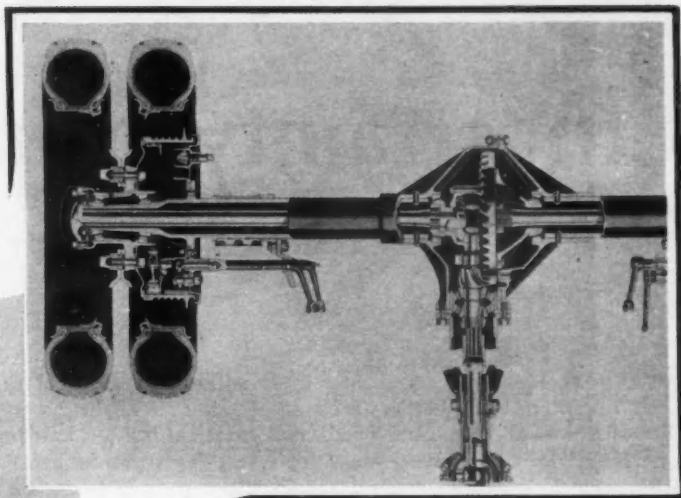
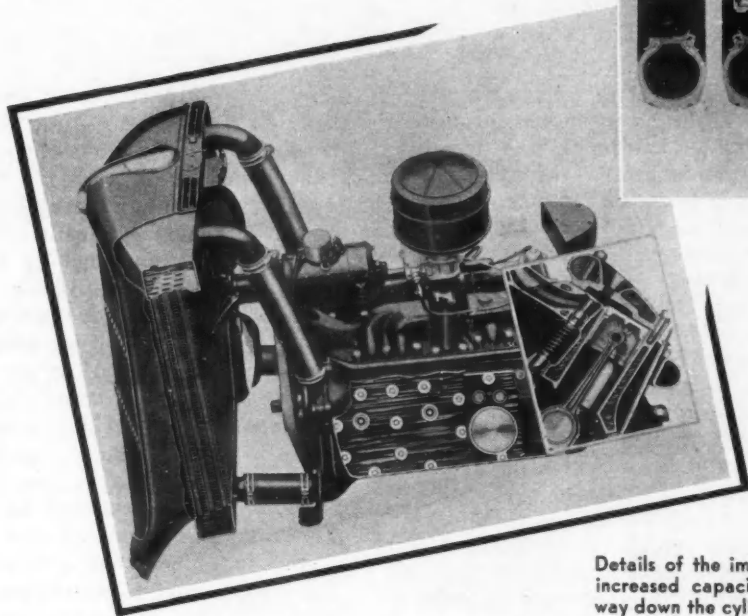
The directed - flow crankcase ventilation system. A screened air scoop directs air from the radiator fan down into the crankcase, whence it flows through suitable openings to the valve chamber, from which it escapes through an outlet at the front.

By moving the front transverse spring 4 in. forward of the front axle and then moving the powerplant forward as much as possible, the available body space has been materially increased and the load distribution improved.

Section through clutch and transmission. The chief point of novelty is the provision of centrifugal weights on the clutch release levers which aid the clutch spring in pressing the clutch plates together in accordance with the speed. This reduces the pedal pressure required to release the clutch at low speeds.



# for 1935



Sectioned view of the full-floating rear axle. A bronze thrust plate bearing against the back of the ring gear keeps the latter in line in the event of heavy shock loads. This view also shows details of the brakes. A floating wedge contacts a single roller at the end of each of the two brake shoes.

Details of the improved cooling system. The radiator has increased capacity and the water jacket extends all the way down the cylinders and over the upper crankcase walls.

ions. The seat width has been increased to 48 $\frac{3}{4}$  in.

The 18-gal. gasoline tank has a conveniently located filler-cap, and the driver no longer needs to lift the seat. The cab interior is fully lined with durable material in a pebble-grain finish. Roof and dash are insulated. Safety glass is standard equipment in all windows, doors and windshield.

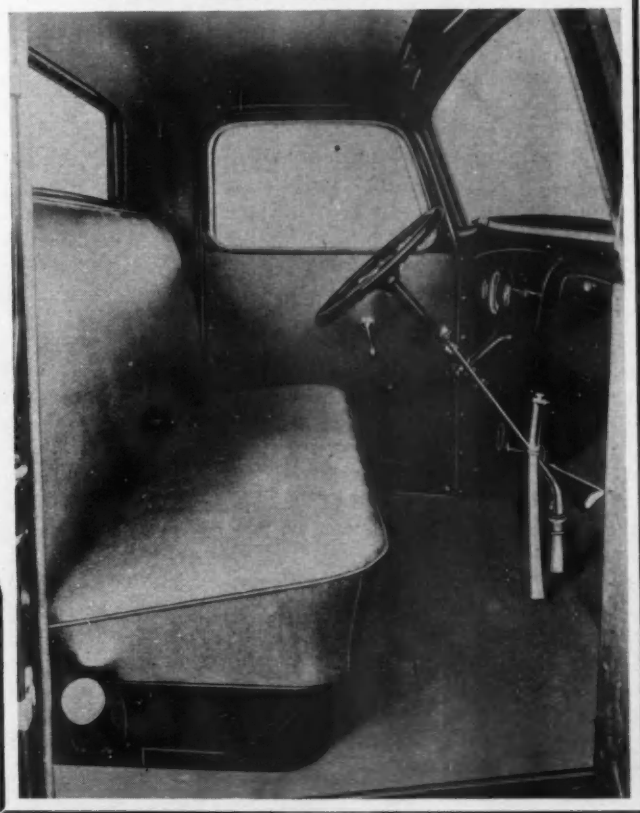
Baked enamel finish, with matching fender colors, is provided on all types.

The new triple ventilation system includes clear vision ventilation in the door windows, a windshield opened by a single center control, and a screened cowl ventilator.

Rolled edges reinforce the deep-skirted fenders and provide a drain trough for water thrown up by the tires, preventing excessive splashing of the body.

Speedometer, ammeter and fuel gage are grouped in a panel at the left side and directly in front of the driver. A dispatch box is placed at the right side of the instrument panel.

Interior of new Ford coupe-type truck cab.



# Uncertainty Impedes Recovery

by George L. Brunner

President and Treasurer, Brunner Mfg. Co.

**T**HE NIRA was doubtless inaugurated with the best of intentions and in the existing emergency it was perhaps as good a temporary measure as could be designed and its temporary character was undoubtedly the part of wisdom. It has some good sections which should be retained with modifications, and very likely business would support it with confidence.

The dynamite in the act is Section 7-a, which has been a continual source of controversy since its enactment. The section was apparently put into the act for political reasons and should never have become a legal provision in its present form.

I have every sympathy with employees and freely concede them the right to band themselves together for mutual protection. In large plants this method is the only available one affording a vehicle for expression of the employees' views, and I am sure business recognizes this need.

On the other hand, I think it is no part of the government's function to maneuver laws in such a way as to foster outside labor unions whose officials thrive on labor unrest. Such type of union cannot understand the conditions involved in individual plants and does not provide the machinery for mutually satisfactory agreements without the use of force.

There is little question that recovery has been retarded by strikes resulting from Section 7-a and the uncertainty of other provisions of the NRA. Until some of these provisions receive legal determination, business cannot know how far it can go without becoming involved in legal responsibility, and until clarification is provided uncertainty will remain.

Under Section 7-a professional agitators, radicals or other forces masquerading as friends of labor can stir up trouble, whether justified or not, with full governmental protection. The result of these conditions creates an uncertainty that is far reaching.

Bankers cannot make loans to

business, confident that the borrower will not suffer heavy losses through strikes, which can be called through no fault of his, at the whim of some irresponsible leader. If business is to be restricted in its latitude, certainly equal responsibility should be placed on labor unions, whose sole claim for existence seems to be the fomenting of labor troubles. If the NRA is to be continued and industry expected to absorb the present unemployed, changes in the NRA must certainly be in early prospect.

Analyses of present conditions would doubtless indicate that fully 70 per cent of the people presently unemployed would be absorbed by the heavy industries if confidence was restored. Business cannot, and will not, place commitments for capital expenditures until it has some assurance that the present alphabetical bureaus and other restrictions are removed.

There is plenty of money and credit available for capital expenditures, including construction, machine tools and other equipment—if

business has assurance that it could go ahead with confidence—and providing banks and loan associations felt that loans could be made for construction without undue risk. If the present situation is permitted to continue with the approval of the Administration, one step naturally leads to another until no one can tell where we are headed for, or when.

Business is on the "qui vive" to go ahead; tremendous voids exist for all manner of production; money and credit is available but it cannot get under way until assurance is given that the social experiments of the past 18 months are at an end.

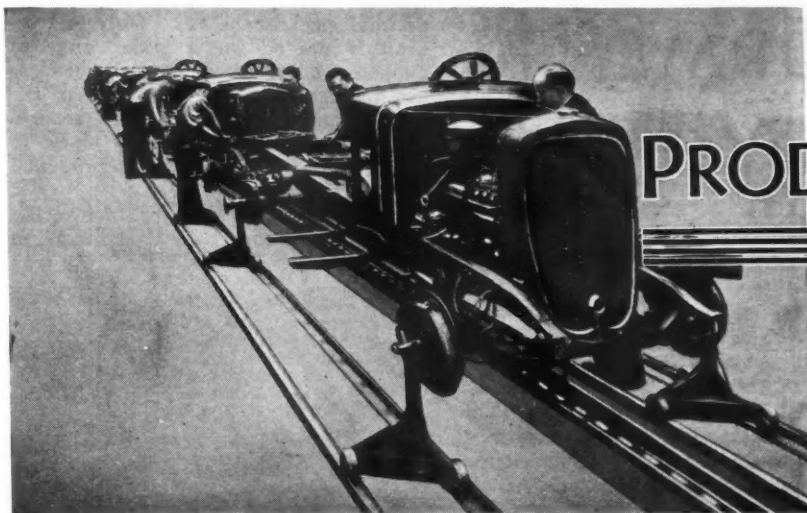
It is my judgment that if President Roosevelt would immediately declare the present emergency ended—give assurance of his opposition to future inflation—express his confidence in the integrity of business—and promise to discard his alphabetical pets as rapidly as industry can absorb the unemployed—the greatest era of prosperity in the history of the country would start.

## X and Y Alloys Least Affected by Heat

**A**T least 50 per cent of the weight of modern aircraft engines is in the form of aluminum-alloy castings or forgings, hence any improvements in the properties of these alloys are a great help to the engine designer in reducing the specific weight of engines. Research and experimental work to determine the suitability of various alloys for aircraft engine castings were carried out by the Material Division of the Army at Wright Field and the results were discussed in a paper by Richard R. Kennedy, associate metallurgist of the Division, presented at the recent annual meeting of the American Foundrymen's Association in Philadelphia. Four different alloys were used in the experiments. The effects of exposure periods up to 192 hours at temperatures within

the range 350-550 deg. F. on dimensional changes and physical properties were studied. It was found that the copper-nickel-magnesium alloys, the X alloy developed by Capt. A. J. Lyon of the U. S. Army Air Corps and the Y alloy of British origin, when in the heat-treated condition, were least affected. An alloy containing 4 per cent copper and 0.7 per cent silicon showed considerable permanent growth after reheating. An alloy containing 5 per cent silicon and 1.25 per cent copper had the lowest tensile strength and hardness of the alloys investigated. This alloy has excellent casting properties and castings free from leaks may be produced from it readily. It has given satisfactory service in liquid-cooled cylinder-head castings for aircraft castings.





## PRODUCTION LINES

### Covers All

Have you seen the new loose leaf handbook—Nickel Alloy Steels—put out this year by International Nickel? It's one of the most comprehensive jobs they have turned out, a veritable mine of information for the designer and metallurgist. The book is in seven sections ranging from Applications to Special Properties and General Information. International Nickel has done an outstanding job and you will pat them on the back when you thumb through your copy.

### Safe Practice

A valuable contribution to safety in welding was made by E. F. Blank of Jones & Laughlin, at the recent convention of the International Acetylene Assn. His paper, "Safe Practices in Oxygen-Acetylene Cutting and Welding" is well worth reading. If you do any welding at all, we suggest that you write to the association for a copy of the paper.

### Photocells

Westinghouse is offering two courses aimed at familiarizing one and all with the theory of the photocell and its varied applications in industry. Course No. 25 is contained in a text book entitled, "Industrial Electronic Tubes" and covers characteristics, performance, and applications. The price of this course is \$2.25. As a supplement you can get Course No. 26 which is a manual of experiments with photocells suitable for laboratory demonstration. This course costs \$0.65. For less than \$3 of our devaluated currency you have

a signal opportunity to acquire some information about this absorbing development.

### Resist Restriction

One of the greatest forces in industry today, the Machinery and Allied Products Institute is on record as being opposed to all efforts to restrict the free use of mechanization in industry. Improvement in manufacturing methods is the only real key to a better product at lower cost and within the pocketbooks of wage earners today.

### Competition Spurs

There still are many people who feel that their old manufacturing equipment will do. Why spend money for improvements? There are many sound reasons too numerous to mention here. But watch out for the pressure from your competitors. Those who have taken advantage of modern tools are in a position to cut costs and offer a better price to your good customers.

### Speed Ahead

A recent trip through the plants of some of the outstanding machinery builders convinced us that certain of them will have startling new developments to offer the automotive industry. One of these is an hydraulically operated vertical die sinker that will cut costs to the bone in producing dies for automotive forgings. Another job that's on the way is a special lapping machine that will work wonders with wrist pins, camshaft bearings, etc.

### Vapor Lock

Petroleum experts brought up the ghosts of yesteryear at the API Convention in mentioning vapor lock. These fellows claim that automobile designers haven't yet solved the problem effectively. What is needed is gas lines of greater capacity, and better cooling of the fuel system. A system with large vapor capacity would permit the use of gasolines with additions of natural gas that is now being wasted.

### Use Color

This comes from a cutting oil expert. It seems that one large factory in our industry has standardized on two types of soluble cutting oil mixtures—one for grinding, the other for metal cutting. The stuff is mixed in specified proportions, stored in separate tanks, and distributed by pipe lines to the different departments. Some trouble has occurred from time to time due to the fact that machine operators have inadvertently used the wrong mixture. Since both mixtures are approximately alike to the eye, the cutting oil man recommended the use of a simple dye material of which a tiny percentage would color the mixture without any effect upon its properties. Maybe you have a similar problem?

### New Products

A study of how certain industrial organizations have widened markets and increased profits by product research is contained in a bulletin issued by Policyholders Service Bureau. Ask for "Product Development," it's free to those interested. —J. G.



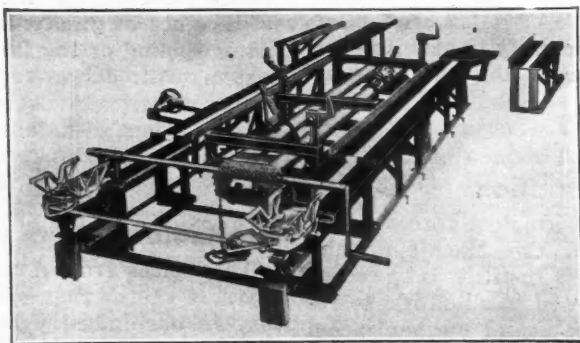
# NEW DEVELOPMENTS

## Automotive Parts, Accessories and Production Tools

### Bee Line Gage Measures from Center

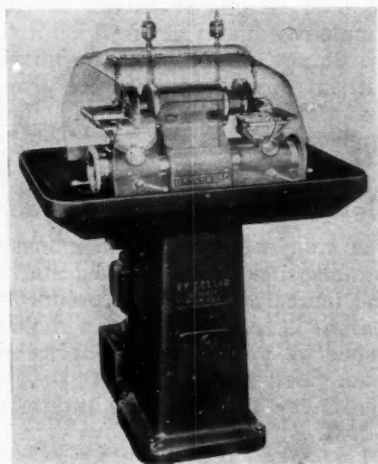
The Bee-Line Mfg. Co., Davenport, Iowa, announces a Center Line Gage, designed to check the location of all parts of an automobile chassis. The gage starts all measurements from the center line of the chassis. Frame parts can now be checked to extremely close

limits. The instrument accurately measures all parts of the knee action systems, including the individual toe-in setting of the front wheels in relation to the intermediate steering arm. The same toe-in gage which is an important part of the tool is used to check the alignment of the rear wheels. It is also used for checking the rear axles, housing or torque tube.



### Grinding Machine Saves Time

A new cemented carbide grinding and finishing machine has been announced to the industry by Ex-Cell-O Aircraft & Tool Corp., Detroit, Mich. Here are some of the advantages



claimed for this new machine: Reduces the sharpening time to at least 10 per cent of the former time required; keen sharp cutting edge with a smooth finish; increases the cutting life of the tool to at least double its production between sharpenings; removes minimum

depth of tungsten or tantalum carbide at each sharpening; eliminates grinding checks and cracks as generated heat is completely controlled; grinds tips to much thinner sections without danger of chipping and breaking.

The machine is compact and sturdy, reducing vibration to a minimum. An inbuilt balanced, three-quarter horsepower electric motor is mounted at the top of the machine, driving two diamond impregnated wheels. The diamonds are impregnated to a depth of  $\frac{1}{8}$  in. on the face of the wheel. This type of wheel is now available in three grades: coarse, fine and extra fine. The grade of wheel used depends upon the finish required and stock to be removed.

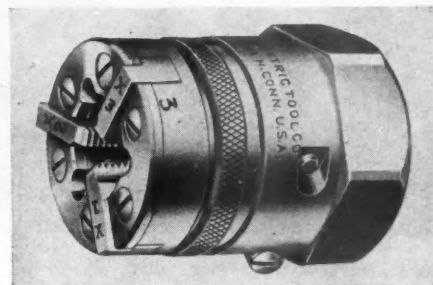
### Removable Chasers For Small Threads

The Geometric Tool Co., New Haven, Conn., has developed a light, removable chaser die head for cutting small diameter, short length threads which are usually handled with solid dies. The  $\frac{1}{4}$  in. Style EJ Die Head complete with Chasers weighs but three ounces. It is built to cut threads from No. 0 up to No. 14 machine screw sizes (maximum capacity  $\frac{1}{4}$  in.) in pitches 20 or finer.

The die head employs a set of three removable, adjustable chasers. By adjusting the chasers, any required

decimal size can be cut. Only one die head is needed for a wide range of diameters and pitches. Separate chasers are required, of course, for each distinct diameter and pitch. To remove the chasers it is necessary only to loosen one of the adjusting screws and pull back the cam.

Chasers are located in relation to the center of the work by a cam fitting in



lug slots. While the chasers are held in place by a face plate, they protrude through the face plate thus permitting close-to-shoulder threading without the use of projection chasers.

### New Brazing Flux Announced by Handy & Harman

A new flux, "Handy Flux," has just been announced by Handy & Harman, 82 Fulton Street, New York City. It has been developed to speed up and improve brazing operations on either ferrous or non-ferrous metals and is particularly appropriate for use with "Handy" Silver Solders and Sil-Fos and Easy-Flo Brazing Alloys.

It has a lower melting point than other fluxes used for the same purpose and permits taking full advantage of silver solders and brazing alloys having low flow points. Greater solvent action on a wide variety of oxides is said to be a feature that speeds up brazing and insures thorough wetting of joint surfaces at low brazing temperatures making it possible to obtain very strong and uniformly dependable joints.

This new flux is made up in paste form ready for use. It works efficiently over a wide temperature range. It spreads rapidly over the work when heated with less tendency to ball up or bubble, avoiding bare spots or the blowing away of flux by the force of the torch flame and the consequent oxidation assuring an even distribution of the solder.

Handy Flux is recommended for brazing stainless steel, steel, monel metal, nickel, copper, brass, bronze and various other ferrous and non-ferrous metals and alloys.

### New Series of Mult-Au-Matics

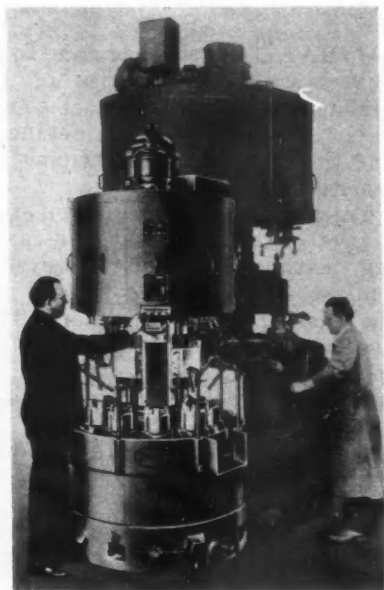
Extending the efficiency and economy of the Mult-Au-Matic method of machining to the smaller classes of



work, The Bullard Company, Bridgeport, Conn., announces a new series of eight-spindle Mult-Au-Matics known as the "J" series.

Series "J" Mult-Au-Matics are designed for the field of small high-speed work, and while the two machines offer all of the advantages of the larger Mult-Au-Matics, they also have many added features not heretofore available. Combined electrical and mechanical functions provide a high degree of flexibility in "change-over" from one job to another in tool setting and in operation.

The electrification affords three push button control stations conveniently located for greatest ease and safety of tool setting as well as machine operation. Each control unit has four separate buttons, one for emergency control which stops all functions; a second for starting the main drive motor;



a third for head traverse advance; and a fourth for head traverse return.

Bullard Type "J" eight-spindle Mult-Au-Matics are obtainable in two sizes, known as "J-7" and "J-11." Their capacities are respectively 8 and 12 in. in diameter with 10 in. for height. Chucks are mechanically power operated, being of the 3-jaw universal type to grip 5 and 8 $\frac{1}{2}$  in. Jaw pressures are adjustable to meet various requirements.

Spindle speeds may be set individually for any desired speed at each station. "J-7" and "J-11" both afford 41 speed changes, the former ranging from 168 to 1509 r.p.m., while the latter ranges from 84 to 754 r.p.m. The dual speed range is a feature of both machines, and this governs in a 2 to 1 reduction all speed settings at the seven work stations. Rates of feeds per revolution of spindle are the same for both machines, and range in 41 changes from 0.004 to 0.036 in.

Tool heads of two types are obtainable. The plain vertical tool head is of one piece construction having a 10-

## NEW DEVELOPMENTS

### Automotive Parts, Accessories and Production Tools

in. vertical movement only. The plain compound head is comprised of a single tool slide mounted on the saddle. The total stroke of this slide is 10 in. which may be applied as vertical movement only or to include maximum of 1 $\frac{1}{2}$ -in. movement of tool slide in either right or left horizontal direction.

The Bullard patented double index feature may be obtained on Series "J" Mult-Au-Matics. This feature provides two adjacent loading stations, and permits of first and second chucking on the same machine when the re-

quired number of operations may be accomplished at the remaining six stations. This allows three working stations for each chucking.

Main drive for both machines—"J-7" and "J-11"—are 10 H.P. motors vertically mounted and direct connected. Traverse motors are for "J-7"—3 H.P., and for "J-11"—5 H.P.

The projected floor space of machines is respectively 50 in. and 58 in. in diameter. The height of both machines from the floor exclusive of the motors is 102 in.

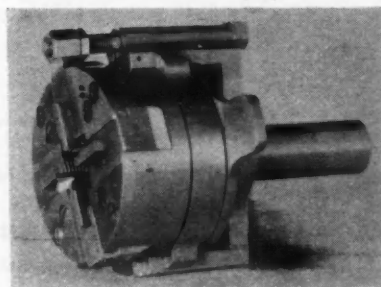
#### Insert Chaser Die Head

The Eastern Machine Screw Corp., New Haven, Conn., announces the development of an H&G Die Head with inserted chasers for the No. 0 Brown & Sharpe automatic. Such chasers are so inexpensive that they may be thrown away when dull and new sets substituted with practically no interruptions in production and without costly adjustments.

The head illustrated is known as the No. 101 size Style DM. Every part on this die head is hardened and ground. It is equipped with the improved "double arm drive" shank which takes the torque at a maximum distance from the center, thus reducing friction of pull-off.

The die head is equipped with both adjustable pull-off trip and adjustable head end trip, the latter being especially advantageous on close to shoulder threading.

The new die head has a capacity range as follows: Up to and including  $\frac{1}{2}$  in. diameter a thread length of 3 $\frac{1}{2}$  in.; up to and including 9/16 in.



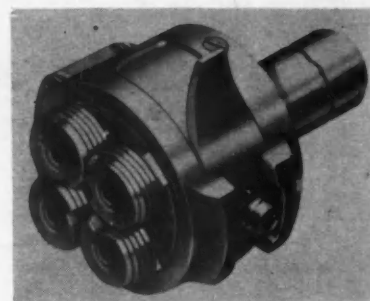
diameter a thread length of 1 11/16 in.; up to and including  $\frac{3}{4}$  in. diameter and thread length of 15/16 in.

Another unusual feature is that this

die head, which is only 2 $\frac{1}{2}$  in. in diameter, uses the same chasers as the H&G Insert Chaser Die Heads used on No. 2 B&S  $\frac{1}{2}$  in. and 1 $\frac{1}{4}$  in. multiple spindle machines, etc.

#### Circular Chaser Die Heads

The National Acme Co., Cleveland, Ohio, announces a new line of self-opening die heads for Brown and Sharpe Automatics with either milled



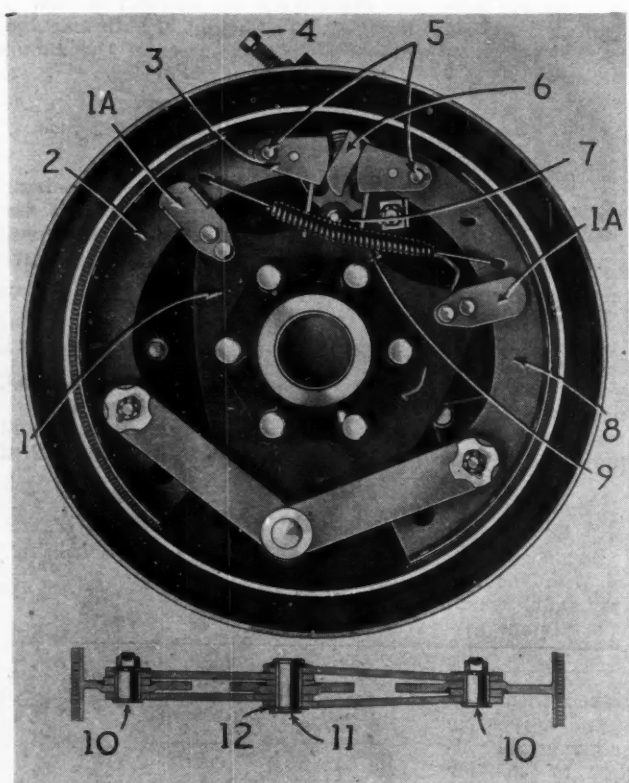
or ground thread circular chasers. These tools are hardened and ground throughout and are of the pull-off type with safety release. The parts are entirely interchangeable and can readily be replaced in case of accident or breakage. The chasers are mounted externally to the head so that the cutting action does not take place inside of the die head proper. Either straight or tapered threads in a wide variety of thread forms can be successfully cut.

When chasers are dull, removing one screw permits the operator to slip each block with its chaser, out of the head. A sharpened set can be slipped into place and operation resumed in a very few seconds. Each chaser is essentially a circular forming tool and has a heavy body of metal back of the cutting edge which carries away the heat of cutting very effectively.



# Chevrolet Brake Linkage Has Plated Parts for Protection

Cadmium and chromium plate are used not only as rust resistants but are also found to reduce friction



In the table below is the key to the numbered parts in the illustrations

WHAT Chevrolet has done to increase the longevity of the brake linkage at the wheel should be of great interest to engineers and those engaged in servicing automotive vehicles.

Briefly, Chevrolet has taken steps to protect the important load-carrying mating parts of the system against atmospheric corrosion and the rusting effect of water. This has been done by plating certain component parts with one of three types of protective coating, as follows:

**Zinc**—used merely as a rust preventive on parts not subjected to wear.

**Cadmium**—used as a rust preventive on parts subjected to wear but not carrying heavy loads.

**Chromium**—used to give increased resistance to wear on parts subjected to heavy loading, and at the same time serving as a rust preventive.

The virtue of these electroplated coatings in general is that in addition to rust protection, both cadmium and chromium are found to reduce friction between mating parts and have, in effect, self-lubricating properties.

It is of particular interest to note that the entire brake cam forging (integral cam and shaft) is chromium plated.

To give a quick picture of Chevrolet practice, we have indicated by key numbers on the illustration the location of all plated parts. A complete description of each part, type of material, character of surface finish, and protective coating, are given in table 1, in which the first column corresponds to the key in the illustration.—J. G.

Table 1

Key No.	Description	Protective Coating	Surface Finish	Material
1	Brake Shoe Anchor Plate	Zinc Plated	....	1010 Strip Steel
1a	Part of Assembly Key 1	Zinc Plated	....	1010 Strip Steel
2	Brake Upper Shoe	Zinc Plated	....	1010 Strip Steel
3	Brake Shoe Roller Sector	....	Contact Surface Ground Cyanide Hardened	1010 Strip Steel
4	Brake Camshaft Lever Adjusting Screw	Cadmium Plated	....	1112 Steel
5	Brake Shoe Roller Sector Pin	Cadmium Plated	....	1010 C. D. Wire Cold Upset
6	Brake Cam	Chromium Plated	Cam and Shank Ground and Carburized	Steel Forging 1015
7	Brake Camshaft Bearing Shaft	Chromium Plated	....	1112 C. R. Steel
8	Brake Lower Shoe Spring	Zinc Plated Black Enamel	....	1010 Strip Steel
9	Brake Shoe Link Pin	Cadmium Plated 0.003 in. on dia.	....	1010 Cold Rolled Steel
10	Brake Shoe Link Pin	Cadmium Plated 0.003 in. on dia.	....	1010 Cold Rolled Steel
11	Brake Shoe Anchor Pin	Cadmium Plated 0.003 in. on dia.	....	1010 Cold Rolled Steel
12	Brake Shoe Pin Lock	Cadmium Plated	....	1010 Strip Steel

## Skid Tests Show Friction Coefficients Decrease With Speed

(Continued from page 770)

ice, ranged between 0.30 and 0.55, and increased slightly with an increase in speed. Coefficients of friction on ice varied from 0.05 to 0.20 depending on the cleanness and smoothness of the ice. These coefficients (on ice) were independent of the speed. Coefficients of friction for sand or cinders on ice ranged from 0.2 to 0.4. As regards resistance to skidding when wet, the road surfaces ranged in the following order: High type asphaltic pavements, tar macadams, asphaltic retread and oiled gravel, untreated gravel, portland-cement concrete, mineral surface asphalt plank, brick, asphalt penetration, macadam with soft-seal coat, fine aggregate type asphalt plank, steel traffic plates, hardwood plank, mud on concrete or other hard surface, and snow-, sleet-, and ice-covered surfaces.

On wet surfaces at 30 m.p.h., the straight-skid coefficient was 10 to 20 per cent lower than the side-skid coefficient for the same surface. Under similar conditions the static and side-skid coefficients were approximately the same. However, for the low-pressure balloon tires the static coefficients were 10 to 30 per cent higher than the side-skid coefficients on the wet high-type surfaces. On untreated gravel the static coefficients were about 10 per cent lower than the straight-skid or side-skid coefficients.

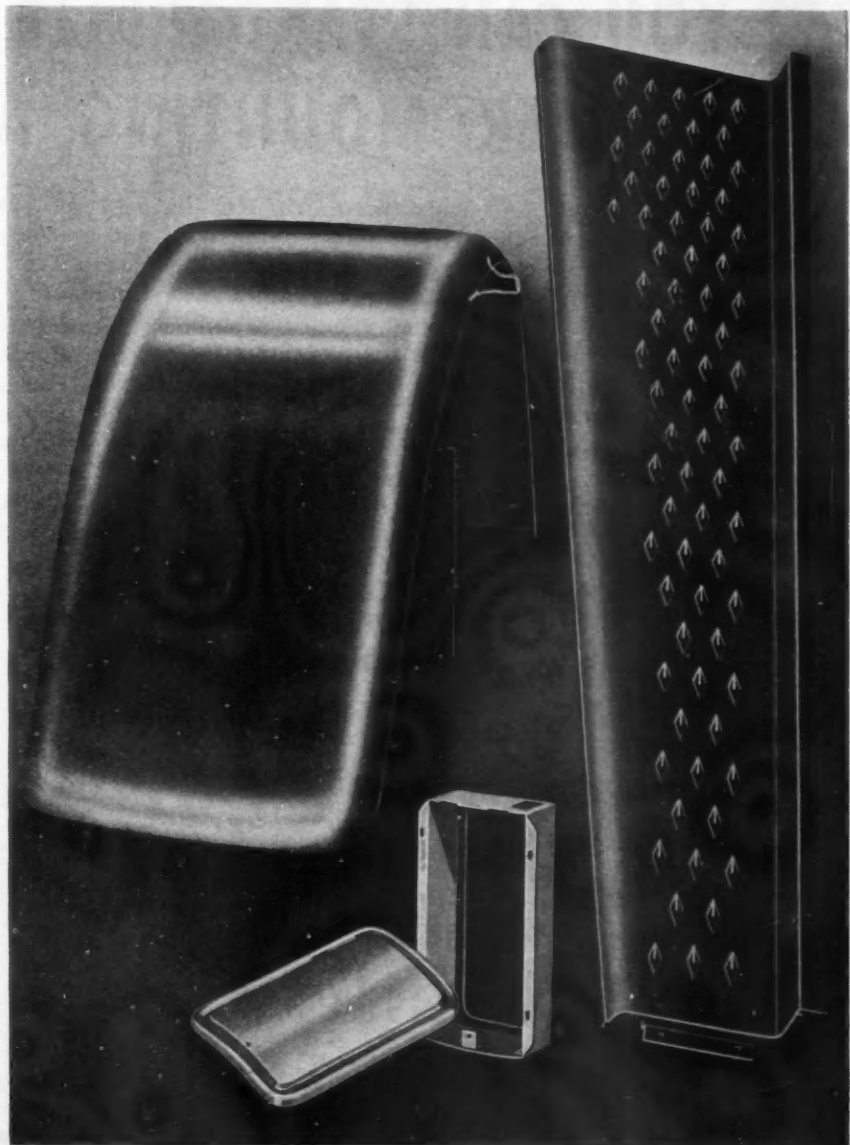
Side-skid coefficients for standard two-link chains on ice were 30 to 50 per cent higher than for standard four-link chains. The coefficients for two-link chains averaged 0.37 at 20 m.p.h., as compared with 0.25 for four-link chains. An average straight-skid coefficient of 0.32 was obtained on ice for four different types of chains at 20 m.p.h. The friction coefficients with chains on ice increased with speed in all cases.

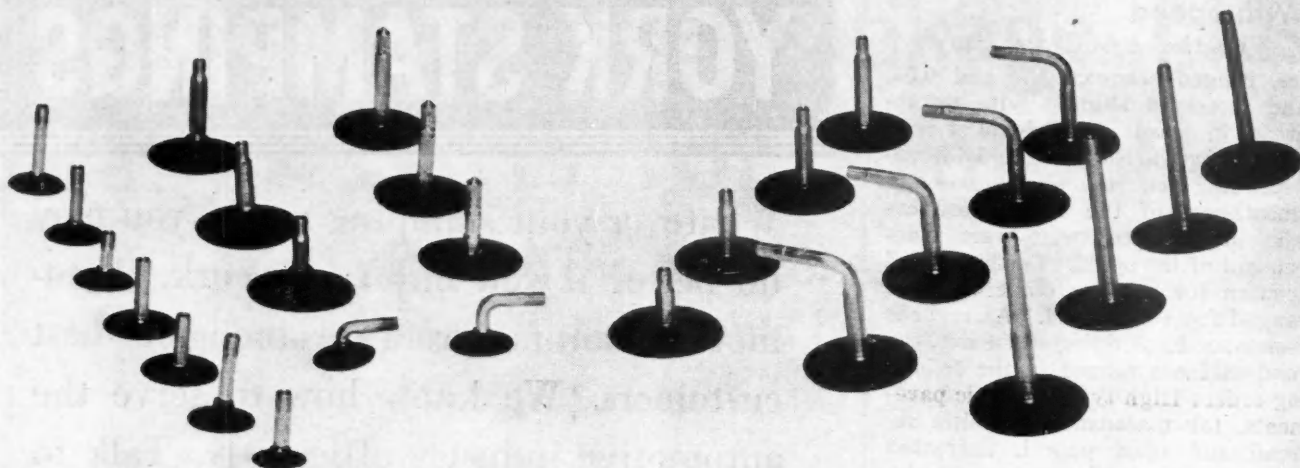
With low-pressure balloon tires the coefficients of friction on wet surfaces were 10 per cent greater than with standard balloon tires of the same tread design and with contact areas only 60 per cent as large. At higher speeds the coefficients for new tires were equal to or greater than those for smooth-tread tires, although the contact areas of the smooth-tread tires were approximately twice as great. A fairly definite increase in the coefficient of friction was observed to accompany a decrease in temperature.

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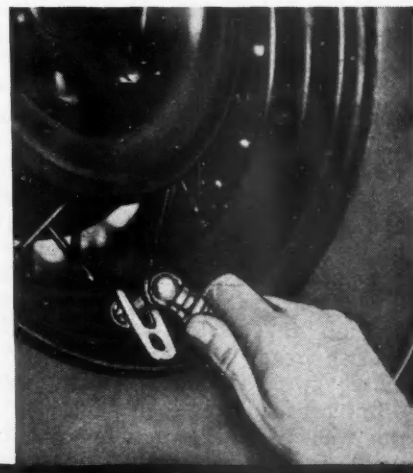
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The Schrader DUBLTITE permits a minimum number of valve-stem sizes, bends and shapes. And the rigid sturdiness of the DUBLTITE's full-length, all-metal barrel assures the firm application of extensions when

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Automotive engineers can readily see the many other advantages of the Schrader DUBLTITE—not the least of which is the attractive wheel trim it permits through the chromium "Ezamount" cap that fits snugly to the rim, with or without ferrule. And the trade and public, too, will be quick to appreciate them for their ease of servicing and sturdy performance. Specify Schrader DUBLTITES on the tubes you buy . . . they meet all rim requirements. A. Schrader's Son, Inc., Brooklyn, New York; Toronto, Canada. *Makers of pneumatic valves since 1844.*









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